



Bacheloroppgave

SAE00 Sykepleie

**Ernæring hos eldre pasienter innlagt i sykehjem/
Nourishment of elderly patients in nursing homes.**

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”Uten mat og drikke duger helten ikke”

Jeg vil takke min familie. Min samboer og to små barn som jeg fikk under utdanningen for deres tålmodighet for mammaen sin i utdanningen sin. Så vil jeg gi en stor takk til min veileder på denne oppgaven, uten deg ville jeg ikke ha kommet i havn 😊

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1.0 Innledning

1.1 Bakgrunn for valg av tema

Jeg har valgt å skrive om ernæring og sykepleie. Tilstrekkelig næringstilførsel hos underernærte på sykehjem er det jeg vil gå i dybden av i denne oppgaven. Forekomst av underernæring i sykehus og sykehjem varierer mellom 10 % til 60 % avhengig hvilke grupper som er undersøkt, hvilke metoder som er brukt og hvilke grenseverdier som er satt for å stille diagnosen (nasjonale faglige retningslinjer)

Pasientgruppe som har særlig risiko for underernæring er eldre.

Her mener jeg det er en stor utfordring for oss sykepleiere som både går ut på det å ta fatt i ett problem som allerede er oppstått og klare å forebygge et kommende problem blant eldre. Her kan det være mye som ligger til grunne for at vi har ernærings problematikk på sykehjem og hos eldre generelt. Eldre mister oftere enn yngre mennesker matlyst i forbindelse med sykdom, noe som medfører redusert næringsinntak og forverret ernæringsstatus. Det kan være medisiner som gir utfallet til at det kan være vanskelig å få i seg nok og variert mat. Sansene våre svekkes på våre eldre dager, mat smaker ikke like godt som det brukte. Det er mange faktorer som spiller inn her, dette vil jeg komme nærmere inn på senere i oppgaven.

Jeg valgte denne oppgaven på grunn av hvor viktig ernæring er for helse og velvære, det er en del av sykepleierens ansvar og jobb, sørge for at beboerne får tilstrekkelig næringstilførsel. Ernæring i seg selv er et veldig viktig kunnskapsområde innen sykepleie. Jeg vil fokusere på kunnskapen om å opprettholde en god ernæring til pasienter/beboere som ikke lengre selv greier dette i sykehjem.

Min erfaring fra sykehjems praksis var at jeg møtte tilfeller av underernæring blant beboerne og jeg følte behandling av dette var et underprioritert område og at fokuseringen på farmakologi hadde på mange måter ført til en undervurdering av ernæringens betydning for velvære og helse. Eldre mottar et bredt spekter av kostbare medisinske tjenester og medikamenter mens tilpasset ernærings og væsketerapi ofte blir neglisjert (Uten mat og drikke, Bjørnstad)

Jeg synes at problemstillingen er relevant for pensumet og sykepleierutdanningen, men jeg mener kunnskapsområdet ernæring burde hatt litt større plass i sykepleieundervisningen da

underernæring er et vanlig problem blant eldre (tidskrift, Nor lægeforen nr.8, 2002; 122) og noe vi vil møte som ferdigutdanna sykepleiere både i sykehus, sykehjem, hjemmesykepleie.

1.2 Presentasjon av tema og problemstillingen

Tema: Ernæring hos eldre pasienter innlagt i sykehjem

Problemstilling: Hvordan kan sykepleiere gjennom forebyggende tiltak bidra til at eldre i sykehjem ikke blir underernært.

1.3 Avgrensning og presisering

Jeg velger å avgrense meg til generelt eldre som er over 60 år og bor på sykehjem som får helsehjelp av offentlig godkjent sykepleier.

Jeg har avgrenset oppgaven til å gjelde beboere på sykehjem. Jeg ønsker å ta opp kunnskap som er et viktig redskap innen sykepleies arbeid og velger å avgrense dette til kunnskap som er nødvendig for at sykepleieren skal kunne gjennomføre forebyggende tiltak for å forhindre underernæring. Noen forebyggende tiltak gjelder alle beboere og noen gjelder å bedre ernæringstilstanden til de som alt er underernært. Jeg vil tilsnakke de eldre/pasienter som beboere da sykehjemmet er deres hjem.

1.4 Definisjon av sentrale begrep

Jeg vil definere

Eldre: generelt eldre/gamle mennesker som er over 60 år og bor på sykehjem, i denne oppgaven.

Sykehjem: der eldre mennesker som er syke eller bare ikke klarer seg selv på egenhånd bor.

Ernæring: som er føde, mat, drikke, væske.

Forebyggende tiltak: Tiltak som skal forhindre eller forbedre, i dette tilfellet underernæring.

1.5 Formålet

Formålet med oppgaven er å få fram hvordan sykepleier kan bidra til at eldre på sykehjem får tilfredsstillende ernæring og hvor viktig ernæringen er for velvære og helse. Hvor viktig det er for underernærte eldre at de får god oppfølging med kost og informasjon. Alternative måter å gi tilstrekkelig ernæring slik at beboerne kan oppnå en god livskvalitet. Som sykepleier skal man ha god kunnskap innenfor dette feltet som både er sykdomsforebyggende og helsefremmende innen klinisk sykepleie. Dette er et personlig engasjement for meg som kommende sykepleier og ett ønske om en mer faglig kompetanse på dette området, som jeg senere kan bruke som sykepleier med og være med på å bidra til at det blir en forbedring innen ernæring og forebyggende arbeid for underernæring i eldreomsorgen og omsorgsyrke generelt.

1.6 Oppgavens oppbygging

Denne oppgaven er basert på litteraturstudium og fem forskningsartikler. Teori delen baserer jeg på kunnskap av generell ernæring, ernæring i eldreomsorgen, underernæring, hva som kan ligge til grunne for underernæring hos eldre, sykehjemmets mat rutiner, teori i sykepleie, teoretiker, sykepleier ansvar og pleieplan. Så vil jeg presentere forskningsartikkelen. Jeg føler at teoridelen og forskningsartikkelen dekker temaet godt og gir ett godt drøfting grunnlag for problemstillingen.

2.0 Metode

2.1 Metode

Først ønsker jeg å ta med Vilhelm Auberts definisjon av ordet metode og hva Dalland skriver om litteratur:

”En metode er en framgangsmåte, et middel til å løse problemer og komme frem til ny kunnskap. Et hvilke som helst middel som tjener dette formålet, hører med i arsenalet av metoder (Dalland 2001,s.71)

”Litteratur er et viktig grunnlag for nær sagt alle studieoppgaver. Det er den kunnskapen oppgaven tar sitt utgangspunkt i, og som problemstillingen skal drøftes i forholdt til.”
(Dalland 2001,s59)

2.2 Fremgangsmåte

Denne oppgaven er bygget på et litteraturstudie og 5 forskningsartikler.

«Litteraturstudie er systematisk gjennomgang av litteraturen rundt en valgt problemstilling og kritisk gjennomgang av kunnskap fra skriftlig kilder og en sammenfatning av dem med diskusjon» (litteraturstudie metode.no)

Jeg fant litteratur i sykepleierutdannings pensumlitteratur (som er generell sykelpølse 1-2-3 Kristoffersen, ernæring sortland, Dalland, eldre, aldring og sykepleie karoliussen,Smeby) og i selvvalgt litteratur. (tidsskrift nor,legeforen, uten mat og drikke,bjørnasta, din kost.no, helsedirektoratet.no, matportalen.no, hve.oslo.kommune.no) Jeg søkte etter selvvalgt litteratur på høyskolens bibliotek og på Internett. Jeg tok kontakt med Eyvin Bjørnstad førstelektor og forsker ved høyskolen i vestfold, der han sendte meg noen artikler og litteratur om emne mitt. Jeg søkte etter forskningsartikler i høyskolens bibliotek database, BIBSYS, ProQuest, OVID, Forskning.no Søker oversikten/historikken ligger som vedlegg.

2.3 Kilde kritikk

”Kildekritikk betyr å vurdere og karakterisere den litteraturen som er benyttet. Det gjelder også andre kilder som benyttes i oppgaven” (Dalland 2001,s.68)

Dalland sier at hensikten med kildekritikk er at den som leser oppgaven skal få del i de tankene man har gjort seg, angående litteraturens gyldighet og relevans når det gjelder å belyse problemstillingen. Jeg fant mye litteratur som kan belyse problemstillingen min, så jeg måtte velge og luke ut en god del for å få plass i oppgaven min, jeg har derfor vært kritisk til den informasjonen og litteraturen jeg har funnet og prøvd å holde meg til den nyeste informasjonen. Jeg har avgrenset forskningsartikkellene fra årstall 2002 oppover til 2008, men en

forskningsartikkel fra 1999 valgte jeg å ha med da denne belyste problemstillingen min godt. Siden jeg har valg å holde meg til nyere forskning kan det være at flere gode forskningsartikler kunne ha gått tapt p.g.a dette.

Jeg ser nå når oppgaven er ferdig at jeg kunne ha søkt på flere søkeord og andre søkeord til de overskriftene jeg har valgt i drøftingen min dersom jeg hadde hatt litt mere tid.

3.0 Teori

3.1 Ernæring

Ernæring er mat/føde og væske. Ernæring er et grunnleggende behov. Ut i fra Maslow pyramiden får vi greie på hvor viktig ernæring er for menneskets behov for å overleve. Menneske fysiske behov er nederst nivå på behovspyramiden og er det mest basiske og viktigste behovet som er. Det er behovet for føde, vann, luft, søvn, fysisk bevegelse og eliminasjon. Det er kort og godt behovet for oppretthold og forsvar av det fysiske legeme. Først når disse behovene er dekket melder behovene på neste nivå seg. Hvis man er svert sulte eller tørst er mann heller ikke motivert for å få tilfredsstilt andre behov.

Oppbygning prosessen i kroppen krever energi, og mennesker trenger over femti forskjellige næringsstoffer til vekst, utvikling, reproduksjon, vedlikehold og reparasjon av celler og vev. Senere i oppgaven vil vi komme inn på at det er en sammenheng med mat vi får i oss og sykdomsutvikling. Mat kan derfor være like viktig eller vell så viktig som medisiner i noen sykdommer, for eksempel hos pasienter med diabetes type 2. Men dette går jeg ikke nærmere inn på i oppgaven.

De viktigste bestanddelene i kosten er protein, karbohydrater, fett, vitaminer, mineraler, vann og fiber.

Proteiner: proteiner utgjør omtrent halvparten av den organiske massen i kroppen. Denne stoffgruppen har avgjørende betydning for de aller fleste av cellenes funksjoner. Protein enes viktigste oppgave er å være katalysator for kjemiske reaksjoner, kroppens byggesten, motor for bevegelse og forsvar mot infeksjon. (Bjålle, Haugen, Sand, Sjaastad, Toverud;2003)

Karbohydrater: er en samlebetegnelse for en rekke stoffer som inneholder karbon, oksygen og hydrogen som lages av grønne planter, prosessen kalles fotosyntesen. Kvantitativt sett er karbohydrater den viktigste kilden til energi i kosten. Karbohydrater er også den formen for energi som cellene i kroppen foretrekker å bruke for å produsere energi til fysisk aktivitet og andre prosesser. Vi kan dele karbohydrater grovt inn i tre grupper: monosakkarid er enkle sukkerarter som glukose, fruktose og galaktose. Disakkarider som består av to kjemisk sammenbundne monosakkarider. Polysakkarid som er kortere eller lenger kjeder bestående av ti eller flere tusen monosakarideneheter. (www.dinkost.no) (Sortland,kjersti;2007)

Fett: Margarin, matolje, kjøttvarer og meieriprodukter bidrar med mesteparten av fett i vårt kosthold. Fett er den mest konsentrerte energikilden i maten. (www.helsedirektoratet.no)

Vitaminer og mineraler :Vita betyr liv. Uten vitaminer og mineraler kan ikke kroppen fungere normalt, og fordi kroppen ikke selv kan lage de vitaminene den trenger, må vi passe på å få de vitaminene vi trenger fra maten vi spiser eller fra kosttilskudd. Vitaminer og mineraler er sammen med karbohydrater, fett og proteiner viktige næringsstoffer som er helt nødvendig for at kroppen skal fungere effektivt. Vitaminer og mineraler finnes i små mengder i maten vi spiser. I tillegg til at hvert vitamin og mineral har sin spesielle funksjon i kroppen sørger de for at kroppen benytter andre næringsstoffer på en riktig måte. Der er to forskjellige typer vitaminer det er fettløselige og vannløselige vitaminer. Vitaminene A, D, E og K er løselig i fett, og finnes derfor i fettholdig mat. Fettløselige vitaminer absorberes sammen med fett, går inn i lymfen og transporteres ved hjelp av proteiner. Overskudd lagres i kroppen, og det er derfor viktig å ikke få for mye av disse vitaminene. Det er spesielt vitamin A man skal være oppmerksom på i denne forbindelse. På den annen side gjør lagringen at ikke daglig tilførsel er nødvendig, så lenge dagsbehovet dekkes på sikt. De vannløselige vitaminene er B-vitaminer som omfatter tiamin, riboflavin, niacin, B6 , B12, pantotensyre og folsyre. I tillegg er vitamin C, også kalt askorbinsyre, et vannløselig vitamin. (www.dinkost.no) (www.matportalen.no)

Jeg vil skrive litt om det generelle kostholdet i Norge i dag, slik at vi kan få et bilde på dette.

Sukkerforbruket i den norske befolkningen er på vei ned, men likevel bruker vi nesten en femdel av matbudsjettet på godteri og brus. Siden 1999 har grønnsak forbruket økt fra 60 til 67 kilo per innbygger i året De gunstige endringene i kostens fettinnhold ser ut til å ha flatet ut i de senere år. Forbruket av ost har økt betydelig over lang tid, og det har vært en vridning mot fete ostetyper.

Også forbruket av kjøtt har økt betydelig over lengre tid. Forbruket av fisk økte i perioden 1995 til 2004, men har minsket noe de siste årene og ligger nå på 39 kilo per år.

– Sammen med økt fysisk aktivitet vil god kostforandringer redusere forekomsten av overvekt, kreft, hjerte- og karsykdommer og diabetes type 2. (www.helsedirektoratet.no)

3.1.1 Ernæring i eldreomsorgen

Aldringsprosessen fører med seg flere endringer som påvirker ernæringen. Kroppsvekten øker hos kvinner opp til 60 års alder og hos menn opp til 50 år, for deretter å avta. Vekttapet skjer gjennom tap av vann og muskelmasse. Samtidig inntreder det en økning i kroppsfett på 0,5–1,0 % per år etter fylte 30 år. Kroppens høyde avtar med alderen, ca. 1 cm per ti år fra 30 år opp til rundt 70 års alder, deretter med ca. 0,5 cm per år. Også muskelmassen reduseres med økende alder: en 70-åring har mistet ca. 40 % av sin maksimale muskelmasse. Når man skal beskrive ernæringsstatus hos eldre må man derfor bruke normalverdier fra eldre, friske hjemmeboende. (tidsskr Nor Lægeforen nr8, 2002, 122) Eldre mennesker er ernæringsmessig en utsatt gruppe. Ernæringsbehovet synker med 20 - 30 % fra 30 til 80 år (Karoliussen, Smeby 2000).

Den fysiske aktiviteten er mindre enn hos yngre. Aktive muskelceller blir etter hvert erstattet av fettceller. Eldre spiser vanligvis mindre for de trenger mindre energi. Dette stiller store krav til kostens sammensetning for å tilrettelegge best mulig tilførsel av næringstoffer fra mat og drikke. Som sykepleiere må vi prøve å ivareta både helse, trivsel, tradisjon og kultur når det gjelder ernæring. Tilfredsstillende ernæring oppnår en ved riktig sammensatt kost, appetitt, velvære, god munn og tyggeforhold og tilstrekkelig fordøyelse i mage- tarmkanalene. En sykepleier må ha kunnskap om psykososiale og åndelige så vel som fysiologiske forhold som påvirker inntaket av mat. Eldres velvære er en forutsetning for å sikre god matlyst og tilstrekkelig ernæring. (Kristoffersen, Jahren, Nina 3. 2004)

Når ikke sykehjemmet klarer å sikre at beboerne får tilfredsstillt sine behov for mat og drikke slik at underernæring oppstår, mislykkes man i å ivareta helsetjenestens formål i helsetjenestens loven

”Kommunen skal ved sin helsetjeneste fremme folkehelse og trivsel og gode sosiale og miljømessig forhold, og søke å forebygge og behandle sykdom, skade eller lyte.”

(www.helsetjenseteloven.no)

3.2 Underernæring

Det finnes ingen allment akseptert definisjon på underernæring. Underernæring kan vurderes på flere måter. Vurdering av høyde, vekt og muskelmasse. Body mass index (BMI). Måling av overarms hudfold på strekksiden. Kan også måles med blodprøver og man kan ta en skjønsmessig vurdering av utseendet. (Karoliussen, Smeby 2000)

Man kan prøve å definere underernæring som en langvarig tilstand der ubalanse i ernæring, proteiner eller andre næringsstoffer forårsaket målbare skadelige effekter på kropps masse, kroppsammensetning, funksjoner og klinisk utbytte. (Sortland,Kjersti;2007) Det er viktig å knytte ernæringsstatus til pasientens fysiske kapasitet, slik som muskelstyrke, immunforsvar, evne til å gå, å kle på seg, å spise selv. Det er flere slike funksjons tester. De er gode prediktorer for yteevne, og viser ofte godt samsvar med muskelmasse. Håndmuskelstyrke er en av de mest brukte, og samsvarer både med kroppsmasseindeks, armmuskel omkrets, evne til å gå i trapp og å handle. Samt med konsentrasjon av vitamin D3 i serum. (tidsskr Nor Lægeforen nr8, 2002, 122)

Årsaken til underernæring er for lite inntak av mat og drikke, dårlig opptak av næringsstoffer i magen og tarm og uvanlig høyt energiforbruk. Konsekvenser av underernæring er slapphet, apati, nedstemthet, svekket immunforsvar, svekket muskler og skjelett, redusert sårhelingene, redusert lunge og hjertefunksjon og økt dødelighet. (Kristoffersen, Jahren, Nina. 2004) men også direkte relatert til dårlig livskvalitet for eldre. (Uten mat og drikke, Bjørnstad)

3.2.1 Hva kan ligge til grunne for underernæring hos eldre?

Mat og et variert kosthold er viktig for å forebygge sykdom og fremme helse. Også når man blir eldre skal mat og måltider gi grunnlag for helse og trivsel. I midlertidig rapporteres det ofte fra media at mange eldre har dårlig ernæringsstatus. Faktorer i omgivelsene kan være årsak til at eldre mister matlysten. Både sultfølelsen og appetitt kan være nedsatt hos eldre. Sansene svekkes, og

det kan bli vanskelig å oppfatte små variasjoner i hvordan maten ser ut, lukter og smaker. Lukt og smak har en viktig rolle for at maten skal både smake og virke appetittene. Når man blir eldre skjer et gradvis tap av både smak og lukteceller.

For å møte disse utfordringene trengs der en kombinasjon av somatiske, psykisk og sosial tilnærming. (Uten mat og drikke, Bjørnstad)

Sortland (2007) mener at eldre er sårbar for væsketap p.g.a redusert væske innhold i kroppen. Tørstefølelsen reduseres med alderen og mange eldre kan derfor gå i lange perioder uten å drikke. Sortland hevder også at eldre alltid skal ha væske tilgjengelig.

Dersom eldre klager på maten og mener det kanskje smaker litt bittert, må pleiepersonalet tenke på de kliniske tegnene om at det mest sannsynlig ikke er en klage, men at sansene som sitter lengst fremme på tungen, kan være svekket. Det vil utgjøre at de eldre kanskje ikke klare å smake søtt og salt legere.

Ofte har underernæring sammenheng med ulike sykdomstilstander. Sykdom og funksjonssvikt gjør spising både slitsomt og vanskelig og de eldre kan oppleve og ikke få tilstrekkelig hjelp til tilrettelegging og spising.

Sykdom og funksjonssvikt gjør spising både slitsomt og vanskelig og de eldre kan oppleve å ikke få tilstrekkelig hjelp til tilrettelegging og spising.

Tap av matlyst kan være på grunn av forskjellige sykdommer som eks. depresjon, forskjellige krefttyper, kronisk hjerte og lungesykdommer, kronisk infeksjon, reumatisk muskelsykdom. Føler man seg uvel spiller det inn på apetitten. Sykdomstilstander som krever et høyt inntak av medikamenter (polypharmacia) kan være en risiko på grunn av mulige interaksjoner med næringsstoffer, med underernæring eller feilernæring som resultat. (karoliussen, smebye 2000 (varma 1994).)

Sviktende blodforsyning til tarmene kan gi sviktende næringsopptak. Lammelse i svelg og soppinfeksjon i spiserøret kan gi svelg vansker. Hypertyrose, forstyrrelse i stoffomsetning kan gi underernæring. Dårlig spisemiljø kan være grunnet til underernæring, da eldre ikke har matlyst eller ikke klarer og spise. Eldre kan ha nedsatt tyggeeffektivitet, det kan skyldes dårlige tenner eller protese men også redusert muskelstyrke i munnen.

Eller det kan faktisk være så enkelt som at de ikke får servert noe de liker.

Det er forbundet med økt helserisiko å være tynn som gammel. Men viktigere enn selve vekten er vektendring. Vektreduksjon er i seg selv uheldig, fordi ved negativ energibalanse hentes energien

fra kroppens fet vev og muskler for å kompensere for manglende tilførsel gjennom maten. (Uten mat og drikke, Bjørnastad)

3.3 Sykehjemmets matrutiner

I litteraturen finner vi anbefalte rutiner for det «gode måltid»

(Undervisningssykehjem Rapport nr. 1/05 *Nok mat, rett mat og trivelige måltider foreldre sykehjemspasienter: et kvalitetssikringsprosjekt Gerd Sylvi Sellevold og Vigdis Brit Skulberg*)

Måltidene skal både være næring og hygge

Forberedelse:

1. positiv holdning hos ansatte
2. informasjon om maten
3. spørre om det er spesielle ønsker for måltidet
4. omtanke for kultur og religion
5. håndhygiene

Mat og drikke:

6. mat som likes og tåles
7. god smak
8. delikat mat
9. variasjon
10. rett temperert
11. små porsjoner

Ved bordet:

12. tid og ro
13. fellesskap
14. god stemning
15. nødvendig hjelp

Oppfølging:

16. spørre om hvordan maten smakte
17. spørre om det er noe som skal huskes til neste måltid

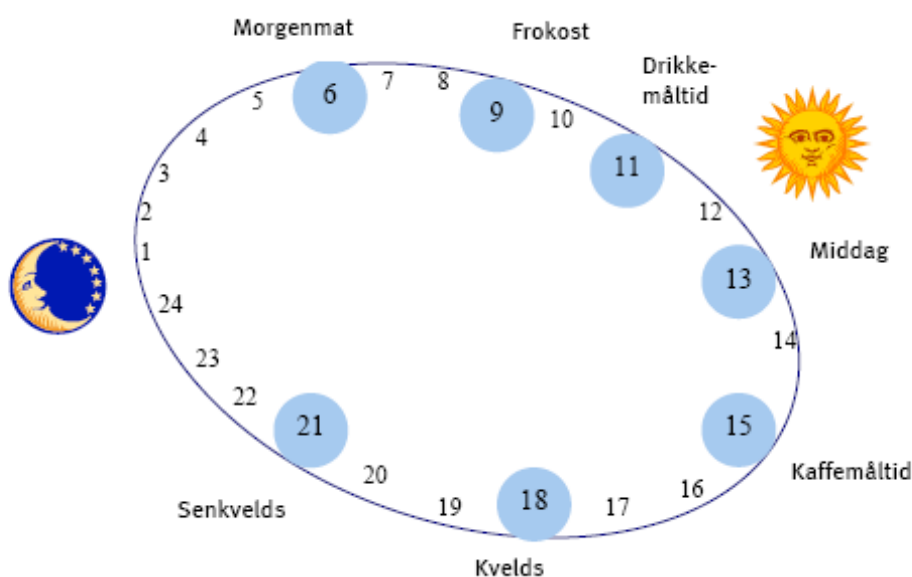
Tilby fire faste måltider samt drikkemåltid om formiddagen og kaffemåltid om ettermiddagen. Beboerne burde få innflytelse på menyen og den praktiske tilretteleggingen av mat og måltider. (Uten mat og drikke, Bjørnstad)

Beboerne som våkner om natten eller tidligere om morgenen bør få tilbud om mat og drikke. En enkel servering med havresuppe, kjeks, yoghurt eller banan seint på kvelden eller tidlig om morgenen vil stoppe nedbrytningen av kroppsvæv (Uten mat og drikke, Bjørnstad)

Ved behov burde det være mulig å få mat utenom faste måltider

Natt faste burde max være 11 timer

Beboerne bør alltid ha tilbud om drikke. (www.hev.oslo.kommune.no)



3.5 Teori i sykepleie

Teori i sykepleie er utviklet innenfor sykepleiefaget. De beskriver og forklarer ulike sykepleiefenomen. Teoriene befatter seg derfor spesifikt med å navngi de fenomenene som en i sykepleien er opptatt av, med og beskrive og forklare sammenhengen mellom disse fenomenene. (Kristoffersen, Jarhen, Nina 2002)

Forebyggende tiltak er sykepleiens forebyggende funksjon som retter seg mot friske mennesker og mot personer som er spesielt utsatt for helsesvikt, eller mot mennesker som er utsatt for komplikasjoner av ulike årsaker. Å identifisere og styrke positive helseressurser hos grupper er en sentral del av denne funksjonen.

Vi har tre forskjellige forebyggingområder

Primærforebyggende tiltak har som mål å forhindre helsesvikt hos friske og utsatte personer og grupper ved å påvirke eller fjerne helse truende forhold eller faktorer allerede før noen skade eller helsesvikt er oppstått.

Sekundærforebyggende tiltak er å identifisere helsesvikt eller for høy risiko for helsesvikt på et tidlig stadium, og deretter sette inn tiltak for å hindre en videre utvikling av risikoen for helsesvikt og eventuell sykdom

Tertiærforebyggende tiltak tar sikte på å hindre at komplikasjoner oppstår ved akutt sykdom, skade eller ved undersøkelser og behandling, og å hindre at nye helseproblemer oppstår hos mennesker med kronisk sykdommer eller funksjonsvikt. (Kristoffersen, Jahren, Nina (red)2002)

3.5.1 Teoretiker

Florence Nightingale mente at sykepleie er å legge forholdene til rette i omgivelsene slik at naturen selv kan virke på mennesket og fremme reparerende og rehabiliterende prosesser. (Kristoffersens, Jahren, Nina; 2002)

I håndbook I sykepleie av Florence Nightingale sier hun at pasientene må ha frisk luft, unngå støy, behov for lys, sykepleierne skal være veldig bevisst på hygiene og bruke sunn fornuft når det kommer til servering av mat.

3.6 Sykepleierens ansvar

Sykepleierens funksjons og ansvarsområde. Sykepleieren har selvstendig ansvar for å ivareta sykepleierfunksjonen. Sykepleierfunksjonen består i helsefremmende, forebyggende, behandlende, rehabiliterende og miljøterapeutiske sykepleiertiltak ovenfor pasienter/beboere med kronisk sykdom og funksjonsvikt, syke og friske eldre med behov for pleie og omsorg og grupper som er spesielt utsatt for helserisiko.

Sykepleieren har et stort ansvar i forhold til å gi riktig ernæring. (Sortland 2007)

Sykepleieren skal hjelpe pasienten/beboere med å utføre ulike gjøremål på en slik måte at han gjenvinner helse, oppnår helbredelse eller en fredfull død. Utøvelsen av sykepleien hviler på respekten for det enkelt menneskes liv og egenverd.

Sykepleieren funksjon omfatter ikke bare direkte pasientrettet arbeid. Sykepleie har som funksjon også knyttet til undervisning, administrasjon, utvikling av sykepleierfaget og samarbeid med andre faggrupper. Alle disse funksjonene har til hensikt å bedre den kvaliteten på tjenester pasienten/beboeren mottar.

Sykepleie har en undervisende og veiledende funksjon for pasienter/beboere og ufaglærte samt andre medarbeidere som trenger det.

Undervisningen og veiledning som blir gitt til pasient/beboer skal bidra til at beboer selv kan være aktiv og ha innvirkning på sin egen situasjon. (kristoffersen, jare, Nina 2002)

3.7 Pleieplan

Pleieplan er ett redskap som skal sikre kvaliteten i sykepleierens arbeid.

I sykepleiens tradisjon følger pleieplanen sykepleieprosessens 5 faser:

- Datasamling
- Problemformulering
- Tiltak
- Utførelse
- Evaluering/rapport

Rapportens viktige funksjon er å overføre kunnskap og informasjon og dermed ansvar fra vakt til vakt og fra person til person. Fordi ansvaret for pasientene er kontinuerlig og felles, må også informasjonsutvekslingen skje kontinuerlig. Felles ansvar for pasienten forutsetter fri flyt av informasjon mellom personalet på en vakt til neste. Og da er det viktig å ha en pleieplan (mal) og følge. (kristoffersen, jarhen, nina 2002)

4.0 Sammendrag av forskningsartikkel

4.1 Dynamic of nutrition care among nursing home residents who are eating poorly.

(Forskjellig behandling av ernæring blant sykehjem beboere som spiser dårlig.)

Forskningen er basert på en 5 års antropologisk forskning som undersøkte det sosiale, kulturelle, miljø og klinisk faktorer som har innvirkning på spise mønsteret på sykehjem.

Forskerne observerte og registrerte all mat som ble spist av forskjellige og matens næring i 3 dager på forskjellige sykehjem.

Den innsamlede data som kom fra forskningen ble tilpasset etter beboerens aktivitet status og klinisk status. Beboerne ble delt inn i 3 forskjellige grupper etter hvor aktiv og hvilke næringbehov de hadde. Analyse av testen skulle identifisere typiske trekk av mat forbruk og mat vaner blant beboerne. Analyse av kvalitativ data viste tre faktorer som hadde betydning når det kom til høy energi og protein inntak. Det var tvang mating, pårørende var til stede under måltidene og medbestemmelse over foretrukket mat.

Data viste også at når næringstilførsel drikk ble servert til beboerne sammen med mat ble drikken oftest erstatningen av mat i stede for å bli en ekstratillegg/kosttilskudd.

4.2 Prognostic significance of monthly weight fluctuations among older nursing home residents

(Prognostisk betydning med månedlige vekt svingninger blant eldre sykehjem beboere.)

Formålet med denne studien var å fastslå om en sammenslutning mellom dødelighet risiko og variasjon i vekt i langsiktig omsorg institusjoner. I dette prosjektet ble det brukt 900 deltagere som er identifisert med ernæringsmessig problem. De 900 deltagerne ble observert i 7 måneder der ernærings-, helse-status, og demografiske data ble hentet. Vekten ble målt hver måned og ble brukt som grunnline. Studiene indikerer at en sterk tilknytning mellom mengden vekttap personer erfarer og risikoen for påfølgende uønskede kliniske hendelser. Det ble oppdaget som en viktig klinisk terskel i hensynet til sykehjem, hvis pasienten hadde et vekt tap opptil 10% innen 180 dager eller 5% opptil 30 dager. Når denne terskelen blir nådd må pasienten bli revurdert å få en ny ernærings plan. Prosjektet var beregnet som et rent observasjons studie og det skulle ikke innføre noen forsknings-drevet intervensjoner. Alle som deltok i prosjektet ble holdt anonyme.

4.3 Is it possible to increase weight and maintain the protein status of debilitated elderly residents of nursing homes?

(Er det mulig å øke vekten og opprettholde protein status som er svekket hos de eldre beboerne på sykehjem?)

Omsorg for eldre personer i kroniske omsorg pleie er ofte vanskelig med de ernæringsmessige problemene som oppstår med tanke på vekt tap og protein opptak som forverrer seg.

Det ble foretatt et forskningsprosjekt der 143 deltakere med en alder mellom 60 til 103 år.

Forskningen strekker seg over en periode opp til 6 år der deltagerne får tildelt et produkt opp til 6 ganger daglig. Produktet består av en sammensetning av råvarer(høyt protein og melkebasert) som er vanlig å ha hjemme, derfor billigere en kommers produkter. Produktet ble gitt enten som en pudding eller en milkshake eller som væske for rør føring og fungerte som eneste kilde til næring. Resultatet av prosjektet ble at de fleste av deltagerne fikk vekten økt med 5kg i det første året, og holdt seg stabil etterpå. Unntaket er de deltagerne som døde før 6 mnd etter oppstart. En behandling over lang tid vil vise seg å være effektiv og lønnsom. Av de 143 deltagerne var det ca.12% som levde mer en 3år etter oppstart, med tanke på at majoriteten av deltagerne hadde slutt fasen av demens eller hatt slag så ble resultatet bedre en forventet. Denne forskningen viser at det er mulig å øke vekt og ivareta protein status som er svekket hos de eldre beboerne på sykehjem på en enkel og billig måte for å gi den totale ernæringsmessige støtten de trenger.

4.4 Testing the effect of specific orders to provide oral liquid nutritional supplements to nursing homes residents. A quality improvement project

(Teste effekten av spesifikke ordrer til å gi kosttilskudd til sykehjemsbeboere. En kvalitets forbedringsprosjekt.)

Kosttilskudd har effekt på vektøkning når de blir gitt mellom måltidene enn sammen med måltider for ikke å erstatte kalori inntaket ved måltidene. Men fordi blir kosttilskudd oftest gitt ved måltider.

Observasjon studie av sykehjem har vist at næringstilskudd er gitt gjennomsnittlig mindre enn en gang per dag, til tross legens anbefalinger for kosttilskudd to til tre ganger daglig.

Hensikten med prosjektet var å teste om å øke frekvensen med å gi protein drikk eller snacks mellom måltider vill forbedre resultatet i forhold til legens spesifikke ordre.

4.5 Nursing home food services. Linkes with risk of malnutrition

(Sykehjemmenes ernærings service sammenlignet med faren for underernæring.)

Forskningen skal finne ut om det er en karakteristikk sammenheng mellom sykehjemmets ernærings service og beboernes fare for underernæring. Det var 38 sykehjem som deltok, der 132 beboere ble opp fulgt. Aldersgruppen på deltagerne var fra 65 år og oppover. Alle som deltok var i fare for å bli diagnostert som underernært. De ble intervjuet for å kartlegge deres mat vaner. For å måle faren for underernæring ble BMI og prosentvis vekt tap overtid registrert. Beboernes journaler ble logg ført og ernærings lederne i de forskjellige institusjonene måtte besvare spørreundersøkelser som også ble logg ført. Avsluttet studie viser et klart behov til sykehjemmene der de bør forandre noen aspekt angående ernærings politikken. Noen av faktorene kan være å bearbeide menyen slik at tilbudet blir mer variert. Beboernes mat lys blir redusert ved å ikke ha mulighet til å velge selv eller hvis innpakningen var ble for vanskelig.

5.0 Drøfting

Med utgangspunkt i problemstillingen min ”Hvordan kan sykepleiere forebygge at eldre på sykehjem ikke blir underernært.” har jeg 6 forskjellige tiltak jeg vil drøfte.

Sykepleierens ansvar i forhold til ernæring

Undervisning

Måltidrutiner

Vekt kontroll og måling av drikke

Miljø

Kosttilskudd

5.1 Sykepleierens ansvar i forhold til ernæring

Vurdering av beboerens næringsbehov er minst like viktig som vurderingen av medisiner og annen behandling

”Sykepleier har ansvar for å administrere forordnede medikamenter, observere virkninger og bivirkninger samt føre kurve, kardex og medisinkort. Ernæringens betydning, notering om hva

pasienten spiser og drikker, eller hvilken næringstoffer pasienten får i seg i løpet av dagen, har ikke alltid fått samme oppmerksomhet. Vurderingen av den enkelte pasients næringsbehov bør være like selvfølgelig som vurderingen av medisiner og annen behandling” (Sortland, 2007)

I teoridelen sier Sortland at sykepleieren har et stort ansvar i forhold til å gi riktig ernæring. Hva kan være årsaken til at de likevel ikke er like delaktige som de burde? En mulighet kan være at i mange sykehjem er det flere hjelpepleiere eller ufaglærte og at sykepleierne er i få tall. Da kan ernæringen på sykehjem fort bli en oppgave som ikke sykepleieren tar seg av, men hjelpepleier eller kjøkkenassistent. Der er kanskje få av hjelpepleierne eller ufaglærte vikarer som har blitt kurset i medisin håndtering, derfor faller dette ansvaret automatisk på sykepleiere. Sykepleiere har da ansvaret for dosering av medisiner og dele ut medisinene og eventuelt administrative oppgaver som blir gjort under måltidene.

5.1.1 Observasjon, kartlegging og tiltak

Det er viktig at ernærings observasjon og vurdering av enkelt beboerens næringsbehov vurderes og dekkes blir likeså viktig for en sykepleier som andre oppgaver rundt måltidrutinen. Her må kanskje sykepleierne bli flinkere til å planlegge dagen og dagens gjøremål.

Sykepleierens oppgave når det gjelder ernæring i eldreomsorgen er å dekke beboerens næringsbehov sier Sortland. Det gjøres på flere måter etter som hva beboerens problem er.

Sykepleieren skal observere beboeren og observasjonen er viktig for videre arbeid.

Dokumentasjon og ernæringsstatus burde være en naturlig del av den kliniske undersøkelsen og behandlingstilbudet de eldre skal ha. Sykepleieren skal observere om hva problemet kan være.

Personalets kliniske blikk er viktig i denne sammenheng. Har klærne blitt større og er maten blitt urørt. Har beboeren problemer med magen, dårlig spyttrefleks, tyggevansker, hva beboeren liker eller ikke liker av den maten han blir servert eller eventuelt tåler og lignende. Sykepleieren må ta utgangspunkt i den maten beboeren er vant til. Slik lages en pleieplan som er et viktig redskap og følge for å få god kvalitet i arbeidet er mener Nina Jarhen Kristoffersen

Personer i ernæringsmessig risiko burde hatt en individuell ernæringsplan med dokumentasjon om ernæringsstatus, behov, inntak og tiltak mener Nasjonale faglige retningslinjer.

5.1.2 Tidsfaktor

Tidsnød i arbeidsdagen til sykepleiere på sykehjem er ett opplyst tema, da dette kan være grunner til at ernæring blir underprioritert. Det å forebygge underernæring er kanskje lettere å vike unna når det er tidsnød. Men noe som kommer mer inn i dags skjema når problemet allerede er tilstede. Pleierne føler en tidsplan og enkelte dager kan være travlere en andre med dårlig bemanning og mye å gjøre.

5.2 Undervisning

Sykepleiere skal kunne gi råd og veiledning om hva den sunne vekten er i forhold til høyde og alder. Vi skal ha god kunnskap om ernæring slik at vi kan tilberede næringsrik mat som vil dekke de forskjellige næringsbehov beboeren måtte ha mener Nina Jarhen Kristoffersen

For å gjøre god jobb trenger personalet tilstrekkelig kunnskap om kosthold og ernæring til eldre i sykehjem. Det bør være en del av forskjellige undervisningstilbud til nyansatte og vikarer samt vider og etterutdanning til faste ansatte. Undervisningstilbudet burde inneholde matens betydning, underernæring og feil ernæring hos eldre, etiske problemstillinger rundt måltidene, hvor mye mat trenger et eldre menneske, vurdering av næringsbehov og dokumentasjon og observasjon av beboerne sier Nina jarhen Kristoffersen. Dette er også to av forsknings artiklene enig i.

5.2.1 Ufaglærte

Sykepleierne har en undervisende funksjon som går ut på at vi skal gi kunnskap innen fagfeltet i dette tilfelle ernæring til de ufaglærte vi jobber med som ikke har denne kunnskapen sier Nina jarhen Kristoffersen. Det kan vi for eksempel gjøre i internundervisning ute på avdelingen i spesielle gitte situasjoner eller man kan ha personalmøter om forskjellige temaer.

5.3 Måltidsrutiner

Sykepleieren skal ha bevisst ansvar for sin oppgave rundt beboeren ernæring og gi et godt tilbud om mellommåltid samt faste måltider kommer det fram på nettsiden til hev.oslo.kommune.no

5.3.1 Hyppighet

Det er viktig med små hyppige måltider for beboere og spesielt viktig for beboere som har høy sykkelighet. Det er viktig og vite hva slags mat som smaker og hva de tåler å spise, for at de skal få tilstrekkelig næring.

Maten bør fordeles på fire faste måltider og minst ett mellommåltid sies det på nettsiden hev.oslo.kommune.no. Muligheten til mat bør gis etter behov, også utenom faste tider. Dette er noe sykepleiere burde spørre beboerne om da de skjeden spør om mat seg. Dette observerte jeg ute i praksis at beboerne skjeden spurte om mat da de fleste ikke ville være til bry for helsepersonalet.

5.3.2 Sammensetning

De fleste eldre orker kun små porsjoner til hvert måltid. Ved liten matlyst er det spesielt viktig med små hyppige måltider. Det er viktig å ha god kunnskap om næringsinnholdet i maten som blir servert slik at den kan dekke behovet til de eldre spesielt viktig er dette siden de ikke får i seg så mye mat og gangen sier Sortland dette er Bjørnastad som har skrevet artikkelen uten mat og drikke også enig i.

5.3.3 Sykdom og funksjonsvikt

Grunnen til at eldre er underernært eller ligger i faresonen kan som en påpekte i teoridelen være sykdom evt medisiner eller funksjonsvikt i kroppen sier Nina Jarhen Kristoffersen

Ofte har underernæring sammenheng med ulike sykdomstilstander. Sykdom og funksjonssvikt gjør spising både slitsomt og vanskelig og de eldre kan oppleve og ikke få tilstrekkelig hjelp til tilrettelegging og spising.

Å ha mulighet til å sette seg ned med pasienten under måltid er det ikke alle vaktene det er mulig og få dette til, da det kan være dårlig bemanning. Da kan det hende at beboere som skulle ha fått hjelp til å spise ikke får dette tilbudet.

5.3.4 Sykdom og matlyst

Tap av matlyst kan være på grunn av forskjellige sykdommer som eks. depresjon, forskjellige krefttyper, kronisk hjerte og lungesykdommer, kronisk infeksjon, reumatisk muskelsykdom. Føler man seg uvel spiller det inn på appetitten.

Sviktende blodforsyning til tarmene kan gi sviktende næringsopptak. Lammelse i svelg og soppinfeksjon i spiserøret kan gi svelg vansker. Hypertyrose, forstyrrelse i stoffomsetning kan gi underernæring. Eldre kan ha nedsatt tyggeeffektivitet, det kan skyldes dårlige tenner eller protese men også redusert muskelstyrke i munnen sier Nina Jarhen Kristoffersen.

Forskjellige medisiner kan være grunn til at matlysten forsvinner. Man kan vurdere å gi medisiner på andre tidspunkt på dagen dersom dette kan la seg gjøre. Vis vedkommende blir litt kvalm av tablettene så må det gå an å gi den etter ett måltid og ikke før dersom tablettene må gis ved mat. Dette observerte jeg jeg ute i praksis. Der ble all medisin levert før måltid. Jeg spurte om det gikk an å få medisinen levert etter måltidet dersom kvalme eller matlyst forsvant av medisinen. Det gikk an men det var bare i spesielle tilfeller da det var helt nødvendig p.g.a ett tettpakket program personalet fulgte. Jeg også jobbet litt i helgene på ett annet sykehjem der medisinen ble delt ut etter måltider. Så det virker som det er forskjellig fra sykehjem til sykehjem. Det handler bare om effektiv og godt planlagt arbeide mener jeg.

5.3.5 Hjelpemidler

Når det gjelder behov for hjelpemidler som kan gjøre spisesituasjonen enklere for pasienten, bør man benytte seg av ergoterapi tjenesten til vurdering og veilede personalet. Nina Jarhen Kristoffersen Jeg observerte også dette ute i praksis at det var god samarbeid mellom de forskjellige helseinstansene i kommunen.

5.4 Miljø

5.4.1 Ro

Det at beboer sitter i en behagelig og i fine omgivelser under ett måltid mener jeg er med på å gjøre at beboeren føler seg mer komfortabel. Dersom beboer sitter vondt vil han mest sannsynlig oppleve stress med å bli ferdig med maten og matlysten avtar. Dersom beboer føler ubehag og har vondt kan det øke stress i matsituasjonen. I følge boken til Florence Nightingale «handbok i sykepleie» kommer det fram at rolige omgivelser er viktig. Ett måltid med fredfull stemning gjør at matlysten øker. Rolige forhold rundt måltider gir mat ro og mer fokus på måltidet. Uro under måltid kan virke ubehagelig for beboer.

Dersom sykepleier driver med mange arbeidsoppgaver med stort ansvar og tidspress under måltidene kan dette virke stressende på beboer dette støtter også forskningsartikkelen om miljø oppom.

5.4.2 Utlufting og stemning

Tilstrækkelig utlufting med behagelig temperatur og pent pyntet bord med ett lys eller flotte blomster skaper en fin stemning rundt måltidet. Her er det viktig at sykepleier ikke nedprioriterer stemningssituasjonen da den er veldig viktig for matlysten til beboeren. Sammen med veltilberedt mat og at beboer kan være med på valget av mat som blir servert vil dette være med på å øke matlysten til beboer. Like viktig som synet av maten er lukten og lyd. Dersom det er vond lukt og mye støy i lokalet vil matlysten kunne avta sier Florence Nightingale i handbok i sykepleie.

5.4.3 Hygiene

Trivsel og hygiene spiller stor rolle i måltidsituasjoner. Hensikten med å ivareta sin personlige hygiene er å oppleve velvære, fremme helse og forebygge sykdom mener Nina Jare Kristoffersen. Florence Nightingale var opptatt av at pasienter skulle være rene og at omgivelsene skulle være rene dette ga økt livskvalitet for pasientene.

Ha det rent og pent samt være ren når man setter seg til et måltid er noe som jeg tror en vær synes er godt. Da er det deilig og få servert mat i motsetning til at det er urent og skitnet i lokalet maten blir servert og en er skitten på kropp og i klær. Men dersom beboeren blir kvalm om han må opp

av sengen for å vaske seg og gå eller bli trillet inn til matsalen, eller om han også vil bli kvalm av morgenstell i seng. Hva skal en prioritere da. Hygiene eller matinntak? Det går an og kanskje prøve å gi beboeren kvalmestillende medisiner før morgenstellet begynner eller beboer kan få mat i seng før man begynner å stelle vedkommende. Men derimot kan man jo prøve å gjøre det ekstra koselig og rent i beboerens rom.

En gjenganger på sykehjem som jeg la merke til i praksis var at personalet var veldig flink til å vaske eller sprite seg på hendene men de glemte beboerne. Noe å tenke på....

5.4.4 Bordplassering

Bordplassering er viktig for beboer under måltid. Her er det mange hensyn som må tas når man skal finne ut hvor beboer skal sitte, med at estetiske og praktiske hensyn kanskje går foran det sosiale. Dersom en beboer hoster og harker en del under måltidet kan dette være til sesansje for andre beboere blir han ofte plassert for seg selv for å skåne både seg selv og andre. Beboere som er dårlig til bens blir ofte plassert der det er lettest å komme til. Da kommer den sosiale prioriteringen oftest til slutt. Sykepleier kan vurderer situasjonen til at beboer hadde mer en nokk med å mestre spisingen at dette hensynet ble satt foran behovet for den sosiale sammenheng. Det kan være at når det sosiale behovet beboerne har under et måltid, der de er vant til at familien samles og det er høydepunktet for dagen og dette faller bort, faller også lysten til å spise og kose seg rundt måltidet bort. Noe som har vært ett av de viktigste pungen for beboerne tidligere i deres liv. Ut i fra fagartikkelen jeg fant om miljø, var det forsket på at dersom beboer på et sykehjem hadde sine pårørende sammen med seg under måltider ble resultatet at de spiste mere mat dette kom godt fram i en av forskningsartiklene jeg har valgt.

5.4.5 Kultur og vaner

Man må se på kultur og miljø i måltidsituasjonene i sykehjem som ett viktig tema. Når maten blir servert må sykepleieren ta utgangspunkt i omgivelsene og den sosiale rammen rundt måltidet. Opplevelsen så godt som religiøse forhold må være like viktig som objektive krav til næringstoffene sier bjørnstad i artikkelen Uten mat og drikke. Det kan være litt dramatisk å lage for eksempel taco på torsdag til kosestund når de eldre kanskje er vant til å kose seg med potetball eller mølja.

I forskningsartikkelen om miljø viste analyse av kvalitativ data tre faktorer som hadde betydning når det kom til høy energi og protein inntak. Det var tvang mating, pårørende var til stede under måltidene og medbestemmelse over foretrukket mat.

5.5 Vekt kontroll og måling av drikke

5.5.1 Veiging

På sykehjem skal beboerne veies en gang i måneden slik at sykepleierne kan følge med om det blir store variasjoner i vekten og oftere regelmessig vektkontroll på underernærte beboere og beboere som er syke slik at man kan følge med om det oppstår uønsket vekttap. Videre er det viktig med tverrfaglig vurdering av situasjonen med lege og helsepersonell for å vurdere årsak til vekttap og hvordan man best mulig kan hjelpe beboeren sier. Nina Jarhen Kristoffersen dette støtter fagartiklene jeg fant om vekttap oppom.

Med et vekt tap å 5% eller mer på en måned vil ha alvorlige følger sier forskningsartikkelen som vekttap. Da er det viktig at vi vet når dette skjer.

For at veiing skal komme inn i rutine må man igangsette tiltak med mål (pleieplan). Tiltakene må opp følges og det burde lages en oversikt over hvilke dager og når tid på dagen målingen skal foregå slik at en kan få en konkret måling. Avdelinger på sykehjem bør ha en overordnet målsetting som gir føringen for dette arbeidet. Denne målsettingen er et hjelpemiddel for å konkretisere mål for livskvalitet knyttet til hver enkelt pasient. På denne måten tror jeg det vil bli bedre for de ansatte da de har noe å forholde seg til. Det blir lettere på den måten at når det kommer nye folk på jobb har de en grundig oversikt over tiltakene slik at veiingen kan kontrolleres likt videre framover.

Hva kan grunne være for at vektkontroll på noen sykehjem ikke blir gjort eller prioritert? Om det kan komme av lite kunnskap og kanskje lite erfaring blant personalet eller for dårlig tid, lite bemanning og travle dager kan være grunner til dette.

For lite kunnskap om hvor viktig veiing er for kartlegging av vekttap som kan føre til underernæring om en ikke kontrollerer dette, sammen med observasjon og kunnskap om ernæring. For lite kunnskap kan også skape negative holdninger at veiing kan bli bortkastet og belastende på

deres tidsplan. Kanskje disse sykehjemmene burde arrangere et lite kurs eller få besøk av gjesteforelesere med god kunnskap og erfaring slik at en kan skape en positiv holdning til tiltaket.

Dårlig tid kan være en grunn. Pleierne føler en tidsplan og enkelte dager kan være travlere en andre med dårlig bemanning og mye å gjøre. Da veiing blir prioritert bort for det kanskje føles som ett mindre viktig tiltak en andre gjøremål på dagen som dusing, stelling, mat o.l.

5.5.2 Væske

For å opprettholde væskebalansen er kroppen avhengig av å få tilført like mye væske som den taper gjennom svette, fordamping, utånding, urin og avføring sier Sortland

vi så i teoridelen at sortland mente at dersom kroppen skal kunne fungere normalt må væskemengden være nogen lunde konstant. Kroppen må ha like mye væske som den taper sier Sortland. Da er det viktig at sykepleier følger med hvor mye væske beboer drikker i løpet av dagen slik at vi kan forebygge at beboer ikke blir dehydrert. Dette støttes også av Kristoffersen.

Når jeg var ute i sykehjems praksis var dette et tiltak som ble godt opp fulgt av helsepersonalet. Det ble satt som et viktig mål at beboer ikke skulle komme innen for denne faresonen. Nå kan jeg ikke snakke for alle sykehjem da jeg bare var ute i praksis på ett.

Da jeg var ute i sykehuspraksis fikk vi inn to pasienter fra to forskjellige sykehjem som kom inn p.g.a. dehydrering og måtte få væskebehandling. Å få væskebehandling intravenøst var ikke ett tilbud som ble gitt på disse sykehjemmet. Jeg husker det ble diskutert høylytt bandt personalet på sykehuset da de mente dette er uhørt, da sykepleiere på sykehjem har samme utdanning som sykepleiere på sykehus og de skal være godt nok kvalifisert til dette.

På sykehjem fikk jeg som svar da jeg spurte om dette, at det ikke alltid var sykepleiere på alle vaktene og da var det ikke ansvarlig og gi intravenøst behandling da det var ufaglærte som ikke var kvalifisert til dette på vaktene og at den beste løsningen var å sende beboerne på sykehus.

5.6 Kosttilskudd

Kosttilskudd er bra for beboere med næringsmessig problem. Dette er et tilbud som beboere burde hatt tilgang til i alle sykehjem synes jeg. Hva kan grunnen være til at dette ikke er ett tilbud i flere sykehjem? Kosttilskudd drikker kan være dyre, dette kan være at flere sykehjem ikke har dette som ett tilbud.

Det er mulighet og øke vekten og prøve gjenopprette proteinstatus til beboere på sykehjem som er underernært eller i faresonen ved å gi beboerne ekstra måltid med ett sammensatt produkt med råvarer av høy protein og melkebaserte produkter som er billigere. Forskningen viser at det er mulig å øke vekt og ivareta protein status som er svekket hos de eldre beboerne på sykehjem på en enkel og billig måte for å gi den totale ernæringsmessige støtten de trenger sier forskningsartikkel om kosttilskudd.

Beboere som våkner om natten og tidlig om morgenen burde få ett tilbud om et lite måltid med eks. yoghurt , banan eller havregrøt kommer det fram på nettsiden hev.oslo.kommune.no som er med på og stoppe kroppen med å tære på fett og muskler sier Bjørnastad i artikkelen han har skrevet Uten mat og drikke.

Kosttilskudd har høyere effekt på vektøkning når de blir gitt mellom måltidene enn sammen med måltidene da de fort kan bli en erstatning for maten og ikke ett tillegg sier Forskningsartikkel om kosttilskudd

Det som kan være negativt med å gi kosttilskudd mellom måltidene er at det kan ta vekk sultfølelsen fra beboerne til de faste måltidene og de spiser mindre da.

Observasjon studie av sykehjem har vist at næringstilskudd er gitt gjennomsnittlig mindre en en gang per dag, fordi om legens anbefalinger om mer kommer det fram i forskningsartikkel om kosttilskudd Det som er grunnen til det tror jeg er at kosttilskudd ikke er så utbredt og at sykehjem ikke har nok informasjon og tilbud om disse produktene.

Kosttilskudd øker energi og proteininntaket og skal være ett tilskudd til normal kost ikke en erstatning som det kommer godt fram i forskningsartikkelen dette støtter også Sortland oppom.

Kosttilskudd er en samlebetegnelse for naturlig og syntetisk fremstilte produkter med spesielt høyt innhold av enkelte næringsstoffer. Regulering og godkjenning av kosttilskudd er underlagt Statns næringsmiddeltilsyn. (Sortland 2007)

Konklusjon

I denne oppgave prøvde jeg å finne ut hvordan sykepleiere kan forebygge underernæring hos eldre beboere på sykehjem. Da dette er noe jeg interesserer meg for. Jeg kan ikke skjønne hvorfor, når vi lever i 2009 at det enda dør pasienter på sykehjem i Norge av underernæring.

Konklusjonen jeg har kommet fram til i min oppgave er at sykepleiere må bli flinkere til å jobbe med forebyggende prosedyrer og tilrettelegging og gjennomføring av måltider da sykepleierne ofte har lite med måltider å gjøre. De er ofte opptatt av generelle sykepleieroppgaver og utdeling av medisiner. Ernæringsarbeidet blir ofte overlatt til hjelpepleiere eller ufaglærte. Siden ernæring er et så viktig tema synes jeg det er viktig at sykepleierne tar mere ansvar for dette.

Det er så mange forskjellige fenomener som spiller inn på hvorfor beboere i sykehjem blir underernært. Da er det viktig at vi som sykepleiere har kunnskapen og muligheten å kunne sette oss inn i hver enkelt beboer tilfelle og finne ut hvor problemet ligger slik at vi kan forebygge dette og i de tilfellene det allerede er oppstått underernæring skal vi kunne behandle dette. Samt undervise de som er ufaglærte slik at når det ikke alltid er sykepleier til stede kan personalet jobbe videre med beboerne slik at de får ett helt og fullt helsetilbud.

Økt fokus på kunnskap om ernæring og forebygging burde det være både i sykepleierutdanningen og etterutdanning for sykepleiere og annet helsepersonell da jeg trur vi har en tendens til å glemme hvor viktig ernæring er for helse og velvære.

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Søkerhistorikk

Søker ord	Database	Antall treff	Leste abstracts	Leste artikkler	Valgte artikkler
Eldre and nutrinton	ProQuest	29	8	5	2
Clinical nutrition	ProQuest	11924	0	0	0
Clinical nutrition and palients	ProQuest	2021	0	0	0
Clinical nutrition and palients and older people	ProQuest	54	9	0	0
Clinical nutrition and palients and older people and nursing homes	ProQuest	1	1	1	0
Malnutrition and older people	OVID	136	15	6	2
Nutrition and weith control and older people	ProQuest	19	11	2	0
Nutrition and health care in nursing homes	ProQuest	221	25	6	1

Oversiktstabell for forskningsartikkene

Forfatter År Land Tidsskrift	Tittel	Hensikt	Metode/ instrument	Deltagere/ frfall	Hovedfunn	Kvalitet
Forfatter: E. Whiteman, K. Ward, S.F Simmons, C.A Sarkisian, A.A Moore År: 2008 Land: USA Tidsskrift: The Journal of nutring, Health and Aging	Testing the effect of specific order to provide oral liquid nutritional supplements to nursing home residents: A quality improvement project.	Å forbedre sykehjemsansatte til å gi kosttilskuddrikke mellom måltidene til pasienter som er i faresonen for vekt tap.	Forsøket gikk ut på å gi 118,5 ml(4oz) av høy protein holdig drikk mellom måltid kl.10, 14 og 19. Det ble utført direkte observasjon i 4 dager eller 12 observasjoner pr.deltager før og en uke etter start. Det ble dokumentert hva og hvor mye som ble konsumert.	8 deltagere på langtids inlegelse	Det ble ikke funne noe spesifikk forskjell på antall ganger en «snack» eller høy proteinholdig drikk ble tilbyd deltagerne. Men mengden som ble tilbyd økte etter forsøket startet, når en høy proteinholdig drikk ble tilbde så ble de 100% konsumert. Konklusjonen er at sykehjemmene ikke klarer å tilby drikkene ofte nok i henhold til forsøkt, men mengden ble foandret.	Forsøket har en tedens til å gi for mye arbeid til personalet på sykehjemmet. Derfor klarer ikke forsøket å fastslå noe som helst annet en at mengden på suplimentet ble forandret.

Forfatter År Land Tidsskrift	Tittel	Hensikt	Metode/ instrument	Deltagere/ fracfall	Hovedfunn	Kvalitet
<p>Forfatter: Natalie Carrier, Denise Ovellet, Gale E West År: 2007 Land: Canada Tidsskrift: Canadian Journal Of Dietetic Practice And Research</p>	<p>Nursing Home Food Services Linked whit Risk Of Malnutrition</p>	<p>Å finne sammenheng mellom sykehjemets mat tilbud og beboere med risiko for under ernering</p>	<p>Det ble utført intervjuer med deltagerne om mat erfaring/vaner. Tileggs informasjon kom fra deltageres kardeks og sjefenes fra hvert sykehjems mat service må svare på et spørreskjema.</p>	<p>Av 38 sykehjem ble 132 beboere valgt</p>	<p>Det ble oppdaget mange eksempel der risikoen for underernering var høyere f.eks; Innpakning, lok eller fat var vanskelig å bruke/ bearbeide. Ferdig pakket mat. Total mat tilfredshet. Ensformig meny, Samme meny over en tid.Forskningen viser klart at sykhjem kan forandre visse aspekt for å forminske beboernes risiko for underernering.</p>	<p>Her blir det funne mange konkrete valg som sykehjemene kan ta stilling til som kan forbedre beboernes livs kvalitet. Dette trenger ikke å koste mye. Derfor er dette en god forskning</p>

Forfatter År Land Tidsskrift	Tittel	Hensikt	Metode/ instrument	Deltagere/ frfall	Hovedfunn	Kvalitet
Forfatter: D.H Sullivan, L.E Johanson, M.M Bopp, P.K. Roberson År: 2004 Land: USA Tidsskrift: The journals of Gerontology	Prognostic Significance of monthly weight Fluctuations Among Older Nursing Home Residents	Forsøket skulle fastslå om det fantes en sammenheng mellom vektap på langtids beboerne og døds risiko.	Deltagernes helse status ble samlet inn før forsøk start. Deretter i 6-7 mnd blir vekt dokumentert. «Cox proportional hazards regression analysis» ble brukt til å finne sammenheng mellom vekt parameter og dødlighets risiko under disse 7 mnd.	900 sykehjem beboere fordelt på 96 sykehjem over 8 stater i USA	Med et vekt tap å 5% eller mer på en mnd vil ha alvårlige følger.	

Forfatter År Land Tidsskrift	Tittel	Hensikt	Metode/ instrument	Deltagere/ fracfall	Hovedfunn	Kvalitet
<p>Forfatter: C. Porter, E.S Shell, J. Kayser-Jones, S.M Paul År: 1999 Land: USA Tidsskrift: The Journal of the American Dietetic Association</p>	<p>Dynamics of nutrition care among nursing home residents who are eating poorly.</p>	<p>Forskningen skulle få en bedre forståelse av hvorfor underernæring oppstår i sykehjem.</p>	<p>Observere og dokumentere all mat som ble servert og spist av alle i studiet. Dette gikk over en periode på 3 dager på forskjellige sykehjem og metoder som ble brukt til å få beboerne til å spise.</p>	<p>38 av 100 personer</p>	<p>Beboerne fikk høyest inntak av næringsmat når enten de ble tvangs matet, når pårørende var tilstede under måltid eller de fikk være med på å bestemme menyen.</p>	

Forfatter År Land Tidsskrift	Tittel	Hensikt	Metode/ instrument	Deltagere/ fracfall	Hovedfunn	Kvalitet
<p>Forfatter: Yaakov Levinson, Tzui Dwolatzky, Aviva Epstein, Bella Adler, Leon Epstein År: 2005 Land: Usa Tidsskrift: The Journal of gerontology: Medical sciences</p>	<p>Is it possible to increase weight and maintain the protein status of debilitated Elderly Residents of nursing Homes?</p>	<p>Hensikten var å finne en billigere og like effektiv måte å opprettholde vekt og protein status hos langtids beboerne på sykehjemmet.</p>	<p>Et høy protein holdig supliment ble gitt til deltagerne ved hjelp av tillegg i mat, drikk eller tube føde. Data som ble registrert var vekt pr.mnd, serum albumin level ble registrert periodvis og hvordan formulan ble gitt. Deltagerne ble fulgt i max 6 år.</p>	<p>Av 5 sykehjem ble det rekrutert 143 stk</p>	<p>Hvis vekten på deltagerne gikk opp 5kg første året ville vekten stabilisere seg de neste årene. De deltagerne som døde inne 6mnd etter start gikk ikke opp i vekt.</p>	<p>Dette er en godt forsøk der resultatene vil hjelpe sykehjem og senke kostnadene derav dette vil hjelpe til å behandle/hjelpe flere beboere.</p>

Forsknings artikler:

- 1: Dynamics of nutrition care among nursing home residents who are eating poorly
- 2: Nursing Home Food Services Linked whit Risk Of Malnutrition
- 3: Testing the effect of specific order to provide oral liquid nutritional supplements to nursing home residents: A quality improvement project.
- 4: Prognostic Significance of monthly weight Fluctuations Among Older Nursing Home Residents
- 5: Is it possible to increase weight and maintain the protein status of debilitated Elderly Residents of nursing Homes?

Fagartikkel:

- 6: Uten Mat og Drikke

Dynamics of nutrition care among nursing home residents who are eating poorly

Carol Porter; Ellen S Schell; Jeanie Kayser-Jones; Steven M Paul

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RESEARCH AND PROFESSIONAL BRIEFS

Dynamics of nutrition care among nursing home residents who are eating poorly

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Malnutrition is a common problem among nursing home residents and profoundly influences physical health and quality of life (1-7). When residents eat poorly or lose weight, nutrition supplementation may be prescribed. Little is known, however, about the effectiveness of this intervention or about the dynamics of nutrition care, such as how, why, and when people eat and how the process of eating affects their lives. The research reported here was part of a larger 5-year anthropological study investigating the social, cultural, environmental, and clinical factors that influenced eating behavior in nursing homes. The study was approved by the Committee on Human Research, University of California, San Francisco.

This article presents quantitative and qualitative data on a subgroup of 38 of 100 nursing home residents who were eating poorly. Findings illustrate how quantitative data (eg, nutrient intake) and qualitative data (eg, interactions during mealtime) complement each other in furthering our understanding of nutrition problems in nursing homes.

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METHODS

Nutritional risk in nursing home residents was defined as (a) eating 50% or less of food served for 2 days or more, or (b) weight loss of 5 lb in 1 month in those weighing 100 lb or more or 2 lb in 1 month for those weighing less than 100 lb.

Research assistants were trained to observe and record all food, supplements, and vitamin and mineral preparations taken by each resident over a 3-day period. A detailed description of the methodology, including methods used to determine dietary intake, is presented elsewhere (8,9).

Energy and protein needs were calculated by the facility dietician using the Harris-Benedict equation (10) and the 1989 Recommended Dietary Allowances (11). Data were then adjusted for activity and clinical status.¹ The need for vitamins and minerals was not estimated by the facility dietitians; thus, the intake of these nutrients was compared with the appropriate Dietary Reference Intakes for age and gender (11-13).

Residents were separated into 3 groups on the basis of the relationship of their average energy consumption during the 3 days to the dietician's estimate of their need: low intake, 90% or less; moderate intake, 91% to 149%; and high intake, 150% or more.

¹Energy need: A factor of $\times 1.3$ was used for ambulatory residents, $\times 1.25$ for chair-bound residents, $\times 1.2$ for bed-bound residents, and $\times 1.5$ for residents who paced constantly. For stage II, III, or IV decubitus ulcers, factors of $\times 1.2$, $\times 1.4$, and $\times 1.6$ were used, respectively. A factor of $\times 1.2$ was used for infection. Protein need: For stage II, III, or IV decubitus ulcers, 1.2, 1.4, or 1.6 g protein per kilogram per day was used to estimate need; 1.2 g protein per kilogram per day was used to estimate need in residents with an infection or serum albumin less than 3.0 g/dL. To convert g/L albumin to g/dL, multiply g/L by 0.1. To convert g/dL albumin to g/L, multiply g/dL by 10.

Differences in interval-level variables were compared across the low-, moderate-, and high-intake groups using 1-way analysis of variance. A contrast *P* value of .0167 was necessary for statistical significance. Differences in nominal variables were compared using χ^2 analysis. A probability of *P* < .05 was used to determine significant differences in these data.

Participant observation was the strategy used to collect qualitative data. Field notes were read, coded, and analyzed in an attempt to identify typical characteristics of food consumption and patterns of interaction among residents and their caregivers (14-18).

RESULTS AND DISCUSSION

Table 1 presents descriptive data and shows that groups were similar, except for cognitive impairment. The low-intake group had significantly less cognitive impairment than the moderate- or high-intake groups.

Table 2 presents energy and nutrient intake data. Significant differences among the groups were noted in protein intake. Eight of the residents in the low-intake group consumed less than two thirds of the amount of protein recommended by the facility dietician. There were no significant differences in vitamin intake among the 3 groups because of the high proportion of residents receiving vitamin supplements. Total mineral intake was particularly poor in the low-intake group. Unlike vitamins, mineral supplements were rarely prescribed. Seven residents in the low-intake group consumed less than two thirds of the DRI for 2 or more minerals.

Of the 38 residents, 22 received more than 30% of their total energy need from commercial liquid supplements. In some cases these supplements replaced food or were taken even when food intake was adequate. Fourteen residents (6 in the high-intake group, 8 in the moderate-intake group) received more than 20% of their energy and protein needs from supplements, even though food was already providing more than their estimated needs.

Qualitative data enhanced the quantitative data by describing the consequences for residents when liquid supplements were used. For example, when meals were placed before one resident, he drank the supplement swiftly, ate the ice cream, and left the table. Rather than encouraging him to eat regular food, or asking if there was anything else they could provide, staff accepted his behavior. Sometimes they set the can of supplement before him without offering any food. For this resident, mealtime was

RESEARCH AND PROFESSIONAL BRIEFS

Table 1
Descriptive data for 3 groups of nursing home residents (n=35)

Variable	Low-intake group (n=11)	Moderate-intake group (n=16)	High-intake group (n=11)	Analysis of variance		Difference* between low and moderate	Difference between low and high	Difference between moderate and high
				F	P			
Age (yr)	90±7 ^b	84±10	89±5	2.61	NS ^c			
Weight (kg)	49.7±9.7	46.6±7.9	45.1±7.7	0.86	NS			
Height (cm)	155.4±5.4	154.0±7.3	150.1±3.5	2.46	NS			
Body mass index (BMI) ^d	20.6±3.8	19.8±3.1	20.1±3.6	0.17	NS			
No. of residents with BMI < 23	8 ^e	15	10	$\chi^2=2.75$	NS			
Mental status score ^f	6.2±3.3 ^g	1.3±2.7	0.4±0.9	16.50	P<.0005	P<.0005*	P<.0005*	P=.416
Eating dependency score ^h	2.6±1.1	3.2±0.9	3.5±0.9	2.40	NS			
Activities of daily living ⁱ	8.6±3.2	9.3±2.0	10.6±1.3	2.25	NS			
Liquid supplements	No. 7 % 64 ^j	No. 14 % 88	No. 9 % 82	$\chi^2=2.31$	NS			
Vitamin preparations	9 82 ^j	7 44	5 45	$\chi^2=4.42$	NS			
Mineral preparations	1 9 ^j	3 19	1 9	$\chi^2=0.76$	NS			

*If analysis of variance indicated a significant difference (P<.05), pairwise contrasts were performed. Because of multiple comparisons, a contrast probability of P<.0167 was necessary for statistical significance; significant values are indicated by an asterisk.

^bMean±standard deviation.

^cNS—not significant.

^dWeight (kg)/height (m)².

^e χ^2 Analysis used to compare these variables.

^fValues ranged from 1 to 10 with lower values indicating greater impairment.

^gn=10.

^hn=15.

ⁱValues range from 1 to 5 with lower values indicating less dependency.

^jValues range from 1 to 12 with lower values indicating less dependency.

reduced to drinking a can of supplement and eating a dish of ice cream.

Analysis of qualitative data revealed 3 factors that contributed to a moderate to high intake of energy and protein relative to the dietitians' estimates of need: force-feeding of residents, family assistance at mealtimes, and provision of preferred foods.

Six residents (4 in the high-intake group, 2 in the moderate-intake group) were repeatedly force-fed, especially on the evening shift. When staffing was reduced, overburdened certified nursing assistants (CNAs) struggled to give all of the residents some food. On a special-care dementia unit, 2 CNAs were responsible for feeding 10 to 14 severely impaired residents. Many of these residents had swallowing difficulties; all needed to be fed slowly and carefully. Pressed for time, the CNAs mixed residents' pureed food into their milk or supplements and forced them to drink the mixture. Force-feeding was most frequently inflicted on the most cognitively impaired residents. Residents who were less impaired were generally left to fend for themselves, even though many required help and encouragement. This finding may explain why the group that had the least cognitive impairment also had the lowest intake.

In some cases, family assistance at mealtime was responsible for adequate

dietary intake. The high- and moderate-intake groups each had 2 residents whose families took an active part in assisting them. One resident was extremely thin and frail. With careful coaxing, her sister-in-law, who visited at the nursing home several hours daily, was able to encourage her to take enough food to prevent further weight loss. Other family members brought in special foods or hired extra help to ensure that their relatives would be fed.

On the other hand, a resident whose nephew rarely visited had no advocate. She ate her meals in bed, alone and dispirited. Her vision was impaired; she struggled to find her fork and to lift the food to her mouth with trembling hands. She often stated that she was hungry and, occasionally when given help by the staff, she ate well.

A Chinese man fell into the moderate-intake category only because during the 3-day dietary analysis on one day he ate a single, large meal even though intake at other meals was poor. Although according to our analysis he was obtaining more than his estimated energy need, his weight fell from 46 kg at the time of admission to 32 kg at his death. He preferred Chinese food, which was not served in the nursing home. A Chinese adult day health center arranged for transport to

the site at lunchtime once or twice weekly. On the day we observed his dietary intake at this center, he ate all of the food served plus a quart of wonton soup brought in by a relative. Providing ethnic food at the center was an excellent idea, but visits to the center were infrequent.

This study produced 3 major findings. First, prescription of supplements for these nursing home residents appeared to be haphazard; when nutrient intake from food was inadequate, vitamins, but not minerals were usually ordered. Second, liquid supplements were used by many residents; often they replaced food or were consumed even when food intake was satisfactory. Third, adequate intake was achieved through dangerous, unpleasant, and unethical force-feeding as well as through safe and pleasant strategies.

APPLICATIONS

- Dietetics professionals often focus on assessing energy and protein needs.

RESEARCH AND PROFESSIONAL BRIEFS

Table 2
Nursing home residents' average daily intake of energy and nutrients from all sources (n = 38)

Energy and nutrient	Energy and nutrient need*	Low-intake group (n=11)	Moderate-intake group (n=16)	High-intake group (n=11)	Analysis of variance		Difference between low and moderate	Difference between low and high	Difference between moderate and high
					F	P			
Energy (kcal)	1,326 ± 199 [†]	699 ± 437	1,648 ± 251	2,135 ± 316	39.40	P < .0005	P < .0005*	P < .0005*	P = .001*
Energy (kcal/kg)	29 ± 4	18 ± 9	35 ± 4	46 ± 8	51.50	P < .0005	P < .0005*	P < .0005*	P < .0005*
Protein (g)	50 ± 9	36 ± 32	69 ± 13	86 ± 17	16.06	P < .0005	P < .0005*	P < .0005*	P = .040
Protein (g/kg)	1.1 ± 0.2	0.7 ± 0.7	1.5 ± 0.3	1.9 ± 0.3	20.62	P < .0005	P < .0005*	P < .0005*	P = .016*
Vitamin A (µg RE) [†]	626 ± 68	1,725 ± 600	1,808 ± 967	2,446 ± 986	2.29	NS [‡]			
Thiamin (mg)	1.1 ± 0.0	2.0 ± 0.6	2.1 ± 1.0	2.6 ± 1.1	0.95	NS			
Folate (µg)	400 ± 0	466 ± 128	524 ± 404	534 ± 219	0.08	NS			
Vitamin C (mg)	60 ± 0	134 ± 71	171 ± 132	165 ± 75	0.73	NS			
Calcium (mg)	1,200 ± 0	601 ± 389	1,187 ± 417	1,524 ± 525	12.15	P < .0005	P = .002*	P < .0005*	P = .062
Magnesium (mg)	333 ± 34	160 ± 90	319 ± 64	402 ± 118	20.69	P < .0005	P < .0005*	P < .0005*	P = .024
Zinc (mg)	12.4 ± 1.0	6.9 ± 5.6	21.0 ± 26.9 [§]	23.5 ± 24.5 [§]	1.86	NS			

*Energy and protein needs based on facility dietitians' calculations; other nutrient needs based on Dietary Reference Intakes (11) adjusted for age and gender.

[†]If analysis of variance indicated a significant difference (P < .05), pairwise contrasts were performed. Because of multiple comparisons, a contrast probability of P < 0.0167 was necessary for statistical significance; significant values are indicated with an asterisk.

[‡]Mean ± standard deviation.

[§]RE = retinol equivalents.

NS = not significant.

[¶]One resident in the moderate-intake group and one in the high-intake group received therapeutic amounts of zinc each day (866 mg ZnSO₄ = 89 mg Zn). If therapeutic zinc was removed from analysis, the moderate-intake group consumed 15.4 ± 7.4 mg zinc per day and the high-intake group consumed 15.4 ± 4.6 mg zinc per day, with significant differences between the low- and moderate-intake groups (P = .001) and the low- and high-intake groups (P = .003).

Emphasis must also be placed on evaluating the need and intake of other nutrients, such as minerals. If augmentation is needed, preparations containing both vitamins and minerals should be prescribed.

■ As a key member of the health care team responsible for the nutrition of nursing home residents, dietetics professionals should consider the potential benefits as well as any negative consequences of liquid supplements on food consumption and quality of life. Use of supplements as a substitute for food deprives residents of one of their last remaining pleasures, the enjoyment of food of their choice. If supplements are prescribed, nursing and dietetics professionals must evaluate their use to ensure that they are not a substitute for food.

■ The use of force-feeding was the most disturbing finding of our study. Because they wanted residents to consume most of their food, CNAs often resorted to feeding methods that were ethically questionable and dangerous, especially for residents with dysphagia. Dietetics professionals and registered nurses must actively supervise dining areas so that proper feeding techniques are used. Furthermore, they must help CNAs understand the value of mealtime as a pleasant social experience, and they must advocate for adequate staffing ratios.

■ Diligent family involvement increased residents' dietary intake. Many residents, however, lacked such support. Efforts by family members who wish to participate in caregiving should be encouraged, and they should be taught safe and effective feeding techniques. Nevertheless, the responsibility for appropriate, thoughtful, and skillful mealtime care is that of physicians, nurses, dietetics professionals, and CNAs.

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Nursing Home Food Services Linked with Risk of Malnutrition

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RESEARCH
RECHERCHE

Nursing Home Food Services Linked with Risk of Malnutrition

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Abstract

Purpose: Links between food service characteristics and residents' risk of malnutrition were examined.

Methods: Cognitively intact residents meeting inclusion criteria and living in one of 38 participating nursing homes were randomly sampled. The final sample consisted of 132 residents, who were screened for risk of malnutrition and completed a face-to-face interview questionnaire about dining experiences. Additional data came from participants' medical charts, and each institution's food service manager completed a written questionnaire. Frequencies and logistic regressions were used to describe the sample and to examine relationships between risk of malnutrition and food service characteristics.

Results: Overall, 37.4% of participants were at risk of malnutrition. Food service factors, including food packages, lids, and dishes that were difficult to manipulate ($\beta=0.285$, $p=0.009$), bulk food-delivery systems ($\beta=1.329$, $p=0.036$), overall food satisfaction ($\beta=0.253$, $p=0.044$), menu cycle length ($\beta=-2.162$, $p=0.003$), and porcelain dishes ($\beta=-0.345$, $p=0.052$), all were significantly associated with risk of malnutrition.

Conclusions: Our findings clearly show a need for nursing homes to modify certain aspects of food service that may increase the risk of malnutrition among cognitively intact residents. (Can J Diet Prac Res 2007;68:14-20)

Résumé

Objectif. Les relations entre les caractéristiques du service alimentaire et le risque de malnutrition chez des résidents ont été examinées.

Méthodes. Des résidents aux capacités cognitives normales, satisfaisant aux critères d'admission et vivant dans l'un des 38 centres d'hébergement participant à l'étude, ont fait l'objet d'un échantillonnage aléatoire. Les 132 résidents de l'échantillon final ont subi une évaluation quant au risque de malnutrition et répondu à un questionnaire sur leur alimentation par entrevue en personne. Les dossiers médicaux ont fourni des données supplémentaires, et le directeur du service alimentaire de chaque centre a rempli un questionnaire. Des analyses de fréquence et des régressions logistiques ont été utilisées pour décrire l'échantillon et examiner les relations entre le risque de malnutrition et les caractéristiques du service alimentaire.

Résultats. Au total, 37,4 % des participants présentaient un risque de malnutrition. Des facteurs liés au service alimentaire, notamment les emballages, couvercles et contenants difficiles à manipuler ($\beta=0,285$, $p=0,009$), un système de distribution en vrac ($\beta=1,329$, $p=0,036$), la satisfaction générale à l'égard des aliments ($\beta=0,253$, $p=0,044$), la longueur du cycle de menus ($\beta=-2,162$, $p=0,003$) et la vaisselle de porcelaine ($\beta=-0,345$, $p=0,052$) étaient tous associés significativement au risque de malnutrition.

Conclusions. Nos résultats montrent clairement que les centres d'hébergement doivent modifier certains aspects du service alimentaire qui peuvent accroître le risque de malnutrition chez les résidents qui ne présentent pas de problèmes cognitifs. (Rev can prat rech diétét 2007;68:14-20)

INTRODUCTION

A large percentage (39% to 61%) of elderly nursing home residents are at risk of or suffer from protein-energy malnutrition (PEM) (1-4). Seniors are particularly predisposed to PEM because of age-related causative factors, such as a general decline in health, increased dependence, and poor oral health (2,4,5). Physiological and psychological determinants of malnutrition and the consequences of malnutrition are quite well known (6,7). However, studies have not yet demonstrated whether institutional factors, such as those related to food service, could help decrease malnutrition and improve quality of life in the institutionalized elderly.

Researchers have begun to identify certain food service factors that could affect risk of malnutrition. Abbasi et al. (8) found that limited menu choices could influence

malnutrition, while Bernstein et al. (9) found that a highly varied diet in elderly nursing home residents was associated with better nutritional status.

Certain institutionalized elderly have a feeling of powerlessness when it comes to food. One study indicated that residents were less satisfied with certain food service characteristics, such as liberty to choose one's food or one's eating places, access to food, and ability to season food to taste (10). Others suggested that certain factors in long-term care (LTC), such as monotonous meals, unappetizing appearance of some foods, unfamiliar food choices, cultural preferences, and dining atmosphere could affect residents' food intake (2,7,11,12).

Malnutrition can have severe consequences for an elderly

person's overall health. It weakens the immune system, which increases the risk of infections that can further diminish nutrition. These factors are at greater risk for malnutrition (5,13,14). The study also found that increased assistance for mortality. All of the health care supports that are at greater risk for malnutrition. The current study links between malnutrition

**MATERIALS
Study population**

The population consisted of 132 residents who were 65 or older living in 61 homes in the study, and that agreed to participate in the study. The mean age was 80.5 years (range 65-95). Two included. Included in the study were six months or more in the study, and six months or more in the study. In all, 132 eligible residents were recruited at that time, some from deafness), selected residents. The research was conducted in Moncton.

Instrumentation

Risk of malnutrition was measured using a screening centage of height was obtained (Limited). seven days which were recorded weight loss over time

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study can determine weight loss over time from weights taken six or more months earlier.

SEARCH

Table 1

Study participants' sociodemographic, medical, and dietary characteristics

Characteristics	Total participants (n=132)	
	n	%
Age		
<85 years	71	53.8
+85 years	61	46.2
Gender		
Male	29	22.0
Female	103	78.0
Partially or totally edentulous without dentures	17	12.9
Conditions that affect nutritional status (≥4)	29	22.0
Medications that affect nutritional status (≥5)	94	71.2
Food allergies	17	12.9
Mobility		
Total assistance	13	9.8
Partial assistance (cane, walker, wheelchair)	95	72.0
Size of institution		
0-69 beds	47	35.6
70-109 beds	44	33.3
≥110 beds	41	31.1

n = number

of malnutrition. The average BMI was much lower for participants at risk (25.1 kg/m²) than for participants not at risk (30.0 kg/m²). Age, gender, and number of conditions that affect nutritional status did not differ between at-risk and not-at-risk participants.

The average length of stay in the homes was 5.6 years. While at-risk participants had lived there six months longer on average, this finding was not significant. Table 1 lists participants' sociodemographic, medical, and dietary characteristics. Food and menu characteristics for participants are presented in Table 2.

To determine the number of solid snacks available to residents, we tallied the sum of all regularly offered solid snacks. Solid snacks ranged from sandwiches to cheese and crackers. Overall food satisfaction was measured by summing responses to four questions related to food quality (i.e., temperature, variety, smell, and taste). Difficulty manipulating dishes, lids, and food packaging was measured by adding

responses to three questions on perceived level of difficulty with utensils (dishes), lids, and food packages.

For the multivariate analysis, tray food-delivery systems, including heated base and dome, insulated tray, and cart with heated and cold sections, were grouped together, and bulk delivery systems, including cart-bulk and steam tables, were combined. The logistic regression results presented in Table 3 reflect the predicted probability with the different individual and food service characteristics that a given resident would be at risk of malnutrition, while controlling for all other factors in the model. Several regression models were tested, which permitted us to eliminate many insignificant variables from the final model. For example, the number of conditions affecting nutritional status was consistently insignificant in all models tested, and therefore this variable was eliminated.

Two individual factors were significantly associated with risk: medications

and food allergies. The risk of malnutrition decreased as the number of medications that affect nutritional status increased ($\beta=0.265$, $p=0.006$). An increased number of food allergies was found to increase risk of malnutrition ($\beta=0.917$, $p=0.022$).

Food service factors that significantly increased the probability of being at risk of malnutrition included difficulty manipulating dishes, lids, and food packaging ($\beta=0.285$, $p=0.009$), bulk food-delivery systems ($\beta=1.329$, $p=0.036$), and overall food satisfaction ($\beta=0.253$, $p=0.044$). A longer menu cycle ($\beta=-2.162$, $p=0.003$) and the use of porcelain dishes ($\beta=-0.345$, $p=0.052$) significantly decreased the probability of being at risk of malnutrition. The logistic regression model correctly classified 70.8% of study participants as being either at risk or not at risk of malnutrition.

DISCUSSION

This study presents a portrait of food service practices in NB nursing homes. Before this study, very limited information existed on nursing home food service practices, and no investigators appear to have attempted to link food service characteristics with risk of malnutrition. Our findings support the hypothesis that potential links exist between certain food service practices and the risk of malnutrition in cognitively intact residents in LTC facilities (2,7-12).

The overall risk of malnutrition identified is similar to that observed in other studies among nursing home populations (1,2). However, the risk in our sample of cognitively intact residents is quite low when compared with that among cognitively impaired residents. One recent study found that, of nursing home residents at risk of malnutrition, 69.9% had dementia (24).

Medication use

Surprisingly, an increased consumption of medications found to affect nutritional status (2,21) was associated with a decreased risk of malnutrition in our study. Previous studies have shown that overnourished elderly patients in an LTC hospital were consuming significantly

Table 2
Food service characteristics and participants' characteristics in relation to food service

Variables	Total participants (n=132)	
	n	%
Food service characteristics		
Menu composition		
Menu cycle length		
- 28 days	102	77.3
- 21 days	30	22.7
No seasonal menu offered	94	71.2
1 main dish offered per meal (regular menu)	36	27.3
1 main dish offered per meal (pureed menu)	78	59.1
≤1 main dish offered per meal (no-salt menu)	94	71.2
Special foods on special occasions (sometimes-never) ¹	34	25.8
Type of food available		
Access to snacks (sometimes-never) ¹	20	15.5
Number of solid snacks available (<3)	50	37.9
Access to fresh "raw" vegetables (sometimes-never) ¹	90	68.2
Access to fresh fruits (sometimes-never) ¹	63	47.7
Menu selection		
Menu selection by		
- residents themselves	61	46.2
- computer, according to residents' preferences	53	40.2
- staff and/or family	18	13.6
Menu chosen		
- at meals	59	44.7
- 1-6 days before meals	16	12.1
- when menu cycle changes	40	30.3
- upon admission	17	12.9
Meal delivery		
Time between breakfast and lunch ≥ 3.5 hours	67	52.3
Time between lunch and supper ≥ 4.5 hours	40	31.3
Time between supper and breakfast ≥ 14.5 hours	43	33.6
Can have meal replaced (sometimes-never) ¹	16	12.4
Food distribution system		
Food delivery system (n=128):		
-Bulk delivery	43	33.6
-Tray delivery	85	66.4
Type of dish material (n=128):		
- Insulated plastic only	33	25.8
- Porcelain and insulated plastic	36	28.1
- Porcelain only	59	46.1
Participants' characteristics		
Diet		
Texture-modified menu	48	36.4
Therapeutic menu	72	54.5
Perception of food service		
Not satisfied with food ¹	38	28.8
Food temperature inadequate (always-often) ¹	15	11.4
Leaves food on plate (always-often) ¹	50	37.9
Food preferences not respected ¹	23	17.4
Overall food satisfaction – quality (sometimes-never) ¹	10	7.6
Dishes, lids, and packages difficult to manipulate ¹	51	38.6

¹Data obtained from face-to-face interviews with participants
n = number

more medications than were under-nourished patients (4). Possibly certain medications that were documented in residents' medical charts were given on a "take only as needed" basis, and therefore did not produce the expected negative effect. In addition, certain residents who were taking many medications may also have been given oral liquid nutrition supplements as a preventive measure, or their medications could have been administered with an oral supplement or other nourishment that may have increased energy intake. This likely would have reduced the risk of malnutrition. Unfortunately, nutrition supplement intake was not measured in our study.

Food allergies

The number of food allergies was related to risk of malnutrition in our sample. Although we did not find any previous studies linking food allergies to risk of malnutrition, we suspect that residents with allergies may be afraid of suffering an allergic reaction to foods and thus may tend to be too selective about what they eat, or even decide to limit their food intake.

Dishes, lids, and packaging

Results also show that risk of malnutrition increased when dishes, lids, and food packages were judged difficult to manipulate. Lilley and Gaudet-Leblanc (12) suggested that individual portion packages and hard-to-handle tableware can increase stress at mealtime, and thereby decrease food intake. Opening food packages, serving foods that are not in packages, and removing lids from bowls or cups before serving could promote adequate nutritional intake in this population. Staff, volunteers, and families who assist residents during mealtime should also be made aware of and trained to recognize and intervene when a resident is having some difficulty during meals.

Delivery systems

The use of bulk food delivery systems also increased risk of malnutrition in our sample of cognitively intact residents. However, Shatenstein and Ferland (25) found that nursing home residents increased their energy consumption after the introduction of

Table 3
Characteristics associated with risk of malnutrition¹

Predictors	β	SE	Wald	p-value	95% exp (b)
Individual predictors					
Number of medications that affect nutritional status	-0.265	0.095	7.707	0.006	0.768
Number of food allergies	0.917	0.401	5.237	0.022	2.502
Poor dentition	0.057	0.299	0.037	0.848	1.059
Food service predictors					
Menu cycle length	-2.162	0.739	8.564	0.003	0.115
Difficulty manipulating dishes, lids, and packages	0.285	0.109	6.832	0.009	1.329
Bulk food-delivery system	1.329	0.635	4.384	0.036	3.776
Overall food satisfaction – quality	0.253	0.126	4.063	0.044	1.288
Porcelain dishes	-0.345	0.178	3.772	0.052	0.708
No respect for food preferences	0.392	0.219	3.197	0.074	1.480
Number of main dishes	-0.485	0.291	2.781	0.095	0.616
Texture-modified menu	0.698	0.520	1.804	0.179	2.010
Seasonal menu revision	0.026	0.019	1.768	0.184	1.026
Meal replaced when desired	0.274	0.361	0.577	0.447	1.316
Therapeutic menu	-0.350	0.498	0.494	0.482	0.705
Constant	-2.530	2.787	0.824	0.364	0.080

¹As determined by logistic regression (n=112)

β = beta coefficient; exp = exponent; n = number; SE = standard error
Nagelkerke R²=0.371

Degree of freedom equals (1) for each variable entered in the model

a decentralized bulk food-portioning meal service, although they observed no change in residents' weight. We postulate that when residents eat in dining rooms or cafeterias where food is served in bulk, they may tend to choose smaller portions; however, it is still unclear how the actual food delivery system influences risk of malnutrition. Further examination of this variable is required.

Satisfaction with food/food preferences

The standard assumption is that residents who are satisfied with food will consume adequate quantities, but we found that overall food satisfaction increased risk of malnutrition. It could be that malnourished residents are indeed very satisfied with the foods that they actually consume, but they may tend to leave large portions of disliked foods on their plates. Perhaps malnourished residents are afraid to complain about the food, or they may exaggerate their satisfaction as a way to "please" staff. In fact, in a recent Evans and Crogan study (26), 65% of residents reported that they did not complain about the food as a way to enhance their satisfaction with meals. Residents who directly divulge their food dissatisfaction to staff may more frequently receive foods they prefer, which thus increases their appetite and nutritional status.

Respect for food preferences and being able to change food choices have been hypothesized to influence food intake and satisfaction (7,10). In fact, a recent study showed that 52% of residents reported receiving foods they hated, but only 75% felt comfortable refusing food that they did not like (26). Seniors who are served unfamiliar foods or foods that they do not like may refuse to eat (7). However, we found no statistically significant relationships between risk of malnutrition and respect for food preferences or ability to change food choices. As noted previously, dissatisfied residents who divulge their dissatisfaction may help increase staff respect for their food preferences, and thus increase their food intake.

Menu cycle

Risk of malnutrition was found to decrease with a longer menu cycle (28 days) versus a shorter cycle (21 days). This could result from an increased variety of foods and reduced monotony. Griep et al. (2) have suggested that a monotonous diet can decrease food consumption in elderly populations. Bernstein et al. (9) found that when food variety increases, energy intake also increases. Providing several choices per meal also tends to enhance food satisfaction and gives a sense of control (7). Nevertheless, our results did not show any

specific link between risk of malnutrition and number of main dishes offered per meal, or seasonal menu revisions.

Dishware

Our results also show a decreased risk of malnutrition when porcelain-type dishware was used. Nearly half the participants lived in LTC facilities that were using porcelain-type dishware, and 28.1% lived in facilities that used both porcelain and insulated plastic dishes. Hackes et al. (27) have suggested that using china dishes during meal service could decrease food waste in LTC. Indeed, porcelain dishes may give residents the feeling of being at home, while insulated plastic dishes could have the opposite effect, making them feel like patients in a hospital. Plastic dishes could also affect the taste of food and beverages.

Dietary restrictions

Surprisingly, certain food service characteristics that have often been hypothetically linked to risk of malnutrition were not significantly related to risk among this sample of cognitively intact residents. Dietary restrictions have been suggested to increase malnutrition in elderly populations (7,8,12,28). Buckler et al. (28) found that 75.2% of nursing home patients with low levels of serum albumin had restricted diets. Most of the diets identified in our study were diabetic, low-calorie, low-fat, or reduced sodium diets. The use of these diets, which are meant to control body weight, blood glucose, blood lipids, and hypertension, would not likely contribute to malnutrition. However, this would depend on the nutritional status of the people being prescribed the diet.

Limitations

A limitation of this study is the relatively small sample size. A larger number of subjects would have increased the validity and reliability of our results. However, the population of cognitively intact residents in LTC facilities is decreasing, making recruitment of a large number of subjects more difficult.

Information on satisfaction and well-being that is obtained directly from residents has been found to be more accurate than information obtained from proxies (10,29,30); surrogates, such as staff, tend to score food service satisfaction much higher than do residents themselves (10). Nevertheless, comparing our results with those from a sample of cognitively impaired residents will be important.

Point-of-service issues, such as the amount of time food trays are left on delivery carts, as well as more specific measures of the quality and variety of the menu cycle, should be included in future studies. In future, investigators should also endeavour to have more detailed data related to intake of medications and food supplements, as well as food satisfaction. While one could argue that we should have excluded residents who were prescribed a reduced-calorie diet (n=10), only two of these residents were found to be at risk of malnutrition; when we excluded these ten residents from our multivariate analysis, there was no significant change in our results.

RELEVANCE TO PRACTICE

Dietitians and food service managers play crucial roles in preventing and maintaining nutritional health among nursing home residents. Our findings should encourage nursing home food service managers to modify certain aspects of service to prevent or correct existing nutritional problems and improve quality of life in cognitively intact residents. Making mealtime less stressful by offering foods that are ready to eat, avoiding lids and packages, and using mostly porcelain dishes could provide a more homelike atmosphere, and thus help improve food intake. Providing a menu cycle of at least 28 days could also help increase energy consumption by decreasing a sense of food monotony.

Modifying a nursing home's basic food delivery system would be quite drastic and costly. Additional data are needed to assess the relationship between food delivery systems and the risk of malnutrition before such changes are initiated. However, clearly nursing homes should conduct periodic plate-waste audits, and encourage dietary and nursing staff to report to the food service manager or the dietitian whenever a resident is frequently consuming small meals.

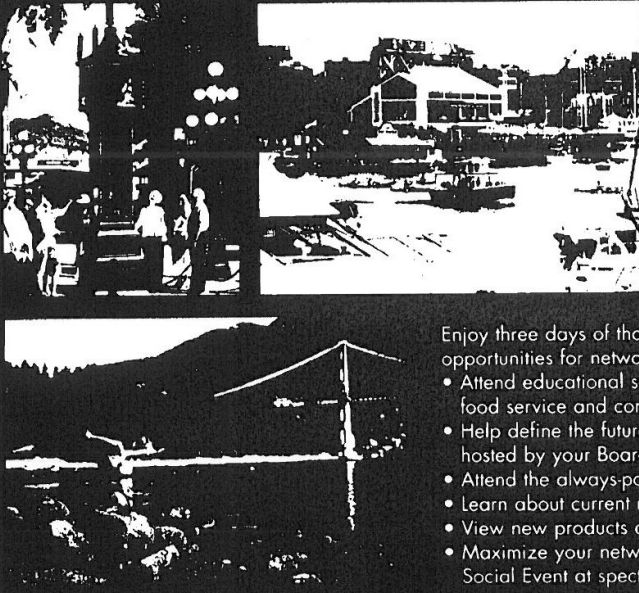
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SPECIFIC ORDERS FOR NUTRITIONAL SUPPLEMENTS

TESTING THE EFFECT OF SPECIFIC ORDERS TO PROVIDE ORAL LIQUID NUTRITIONAL SUPPLEMENTS TO NURSING HOME RESIDENTS: A QUALITY IMPROVEMENT PROJECT

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Abstract: *Objectives:* To improve nursing home (NH) staff delivery of oral liquid nutritional supplements between meals to residents with a history of weight loss. *Design:* Pre-Post intervention study. *Setting:* Two skilled nursing homes. *Participants:* Eighteen long term care residents. *Intervention:* At baseline all participants had a non-specific physician's order to receive a nutritional supplement. The intervention consisted of specifying the physician's order as follows: "Give 4 oz high protein supplement at 10am, 2pm, and 7pm". *Measurements:* Research staff conducted direct observations for two days during and between meals for a total of 4 days, or 12 possible observation periods per participant before and one week following the intervention. Research staff documented NH staff delivery of snacks (including high protein supplements) and amount consumed (fluid ounces) for the high protein supplements using a standardized protocol during each observation period. *Results:* Before the specific order was written participants were offered any type of snack an average of 1.82 times per day and a high protein supplement 0.59 times per day. After the specific order was written participants were offered any type of snack an average of 1.59 times per day and a high protein supplement 0.91 times per day. There were no statistically significant differences in the average number of times snacks or supplements were offered before and after the specific order was written. The proportion of snacks offered that were high protein supplements did increase after the specific order was written ($p < 0.001$). When a high protein supplement was provided, most residents consumed 100% of it. *Conclusions:* Oral liquid nutritional supplements were not provided consistent with orders in NH practice. The specificity of the order related to type of supplement and time of delivery did not influence when and how often supplements are provided to residents but it did influence the type of nutritional supplement offered.

Key words: Nursing home, nutrition, supplementation, quality.

Introduction

Approximately 10% of nursing home (NH) residents lose weight unintentionally and 23-85% are malnourished (1-3). Weight loss can place older persons at higher risk for infections, skin breakdown and increases in the rates of hospitalizations and mortality (4, 5). Oral high protein liquid nutritional supplements are often ordered to treat unintentional weight loss and to improve nutritional status (6-9). Unfortunately, previous studies utilizing indigenous NH staff have shown that despite such supplements being ordered, they are not received consistently (10, 11). Specifically, observational studies of NH care practice have shown that supplements are provided, on average, less than once per day despite physician orders for supplement delivery two to three times daily (10, 11). Calorically dense supplements most effectively promote weight gain when they are provided between meals rather than with meals so as not to substitute for caloric intake at meals; (12) however, such supplements are often provided with meals (10, 11).

The largest barrier to supplement delivery in the NH is likely

to be inadequate staffing levels that prevent staff from delivering the supplement multiple times per day (11-15). Another likely barrier that has been suggested is that direct care staff (i.e., nurses aides) may not be aware of orders to deliver supplements and/or may not be supervised to ensure orders are carried out (11, 13).

A potential solution to improve oral supplement delivery to NH residents that may be easier than improving staffing ratios and educating and supervising direct care staff is to increase the specificity of orders for nutritional supplements. A previous study observed that NH residents who had an order specifying both that the high protein liquid supplement was to be delivered between meals and at specific times (e.g., 10am, 2pm and 7pm) received a supplement at a higher frequency between meals compared to NH residents without such specific orders (11). The purpose of this quality improvement project was to test whether the frequency of delivery of high protein liquid nutritional supplements or other types of snacks between meals would improve in response to a physician's order that specified the type of supplement, and amount and the time of day the supplement to be provided.

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Methods

Setting and Participants

Eighteen participants were selected from two proprietary NHs in Southern California (8 participants resided at one facility and 10 at the other facility), one of the NHs was part of a chain of 36 NHs and the other NH was a freestanding facility. At the time of the study these facilities housed a total of 184 residents (% bed occupancy at the time of the study was 86% for the chain NH and 72% for the single NH). Nurse-aide level staff-to-resident ratios, as reported by the directors-of-nursing, were 6 residents per nurses' aide on the 7am to 3pm shift and 10 residents per nurse aide on the 3pm to 11pm shift. Participants were selected for observation if their physicians were faculty members at UCLA (one physician at each facility) and they had evidence of weight loss determined by assessing weights for the prior two months. Each of these participants also had an existing order for nutritional supplementation (e.g., oral supplement tid, three snacks a day between meals).

Measuring Supplement Delivery and Oral Food and Fluid Intake Between Meals

Direct observations were conducted by trained research staff according to a standardized protocol, used in previous work (11, 13) for all 18 participants. Residents were observed during the following time periods for two days before the intervention and for two days after the intervention to capture NH staff delivery of oral liquid nutritional supplements (or any other calorie-containing food and fluid items given between meals). The four days of observation occurred between meals at the following times: 9:00 am to 11:30 am, 1:30 pm to 3 pm, and 6:30 pm to 8 pm. Thus, each participant had a possible total of 12 observation periods (3 between-meal periods for 4 days). Research staff documented the specific type of snack provided to the resident and, for high protein liquid supplements, the percentage consumed during each of the six observation periods. Direct observations of snacks delivery between meals were complete for 11 (61%) of the 18 participants with an order. The remaining 7 participants with an order had incomplete observational data due to being out of the facility for one or more observation periods.

Intervention

As per study inclusion criteria, each eligible resident already had a history of weight loss and a non-specific order for nutritional supplementation. Following two days of baseline observations, the two physicians wrote orders for each participant specifying the amount and time of day the nutritional supplements were to be provided. The order was: "Give 4oz high protein supplement at 10am, 2pm and 7pm". One week after the change in order participants were observed again for two days using the same standardized direct observational protocol used at baseline.

Statistical Analyses

Demographic characteristics including gender, race, ethnicity and age were recorded for each of the residents. Using data from only those who had data collected for each of the observation periods (n=11), the average number of times per day a snack was offered to each participant was calculated before and after a specific order was written for a) all types of snacks, including high protein supplements, and b) only high protein supplements. Among the participants having complete data, paired sample t-tests were used to compare the average frequency of supplement delivery per person per day across the two days of observations before and across the two days of observations after the specific physician order was written for all types of snacks and again for only high protein supplements. Using chi square analyses, the proportions of snacks offered that were high protein supplements were compared before and after the specific order was written for the entire sample (n=18). For those who consumed high protein supplements, the percentage of times all of it or none of it was consumed was also calculated before and after the specific order was written.

Approval

This study was approved by the Institutional Review Board of the University of California, Los Angeles and a waiver of informed consent was obtained.

Results

Subjects

Twelve of the 18 study participants were female (67%), 13 respondents were White (72%), 3 were Black and 2 were Hispanic, and their average age was 82 years (range 63-100 years).

Nursing home staff delivery of snacks and high protein supplements between meals

Before specific order

Snack delivery: NH staff offered a high protein supplement or other snack (e.g. ice cream, sandwiches, pudding, juice, milk) between meals on average 1.82 (+ 0.91) times per day (mode=1 range=0-3) to the 11 participants who had complete data (Table 1). Among all 18 participants, 3 residents were given a snack between meals during all 6 observation periods and all participants received at least one snack during the 6 observation periods. Of the snacks offered, 37% were high protein liquid supplements.

High protein liquid supplement delivery: NH staff offered a supplement between meals on average 0.59 (+ 0.73) times per day (mode=0 range=0-2) to the 11 participants who had complete data (Table 1). Among all 18 participants, no participant was given a snack between meals during all 6 observation periods and 13 participants received at least one snack during the 6 observation periods. A high protein

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supplement was offered a total of 18 times to participants over the two days of observations; 75% of the time participants offered a supplement consumed 100% of it and 17% of the time they consumed none of it.

Table 1
Nursing Home Staff Delivery of Snacks Between Meals

	Frequency of Delivery (per participant per day) Mean (+ Standard Deviation)	
	Before Specific Order	After Specific Order
All Snacks ^a	1.82 (+0.91)	1.59 (+1.01)
High Protein Liquid Supplements ^b	0.59 (+0.73)	0.91 (+0.92)

a. Paired t-test $p=0.31$; b. Paired t-test $p=0.11$

After specific order

Snack delivery: NH staff offered a high protein supplement or other snack between meals on average 1.59 (+ 1.01) times per day (mode=1, range=0-3) to the 11 participants who had complete data (Table 1). Among all 18 participants, 2 participants were given snacks between meals during all 6 observation periods and all participants received at least one snack during the 6 observation periods. Of the snacks offered 67% were high protein liquid supplements.

High protein liquid supplement delivery: NH staff offered a supplement between meals on average 0.91 (+ 0.92) times per day (mode=0, range=0-3) to the 11 participants who had complete data (Table 1). Among all 18 participants, no participants were given supplements between meals during all 6 observation periods and 13 participants received at least one supplement during the 6 observation periods. A high protein supplement was offered a total of 33 times to participants over the two days of observations; 68% of the time participants offered a supplement consumed 100% of it, and 28% of the time they consumed none of it.

Comparison of data before and after the specific order

There were no significant differences in the average number of times per day participants received any type of snack between meals ($p=0.31$) nor in the average number of times per day participants received high protein supplements (excluding other types of snacks) between meals ($p=0.11$) (Table 1). There were statistically significant differences in the proportions of snacks provided between meals that were high protein supplements before (37%) and after (67%) the specific order was written ($p=0.002$).

Discussion

NH residents were no more likely to receive snacks or specifically high protein supplements between meals after a physician wrote an order specifying that high protein supplements were to be provided between meals at specific

times as compared to before such a specific order was written. After the specific order was written, participants were more often provided high protein supplements rather than other types of snacks. The results of this quality improvement project contrast with a previous descriptive study in which a sample of NH residents who had specific orders written did receive supplements more often as compared to those residents without a specific order (11). The study also replicates the findings from two prior studies, which showed that NH residents do not receive nutritional supplements consistent with their orders (10, 11). We had hoped that a relatively easy and inexpensive intervention such as writing a specific order would improve delivery of high protein nutritional supplements to NH residents. Potential barriers to this intervention's success include inadequate nursing staff to resident ratios, already described as related to failure of many interventions in NHs. However, the NHs participating in this study had sufficiently high staffing ratios (6:1 for day shift) that others have found should allow them adequate staff to provide supplements between meals (15, 16). An additional barrier to success in this study was that we offered no specific training of nursing staff to increase delivery of nutritional supplements. Further, part of the failure of the intervention could have been that NH residents prefer other types of snacks than high protein supplements and NH staff may have substituted other snacks for high protein supplements if they knew the residents would be more likely to consume them.

There are several limitations to this study. First, the study sample was very small and only included two physicians and two NHs. Second, the specific order was written only one week before we observed the provision of supplements between meals. This amount of time may not be sufficient for NH staff to alter care practices. Third, it is possible that the direct observations conducted by research staff between meals for four days resulted in missing some NH staff delivery episodes; however, the total frequency of snack or supplement delivery between meals remained well below the ordered frequency and consistent with the findings of previous studies (10, 11).

Although this quality improvement intervention failed, the results of previous studies suggest that the specificity of orders related to time of delivery may be important (11). Physicians, dietitians and supervisory nursing staff may be able to serve an important role in improving supplement delivery by specifying time of delivery within the order (physicians) and intermittently monitoring delivery via direct observation (dietitians and supervisory nurses) to assure that orders are being followed by direct care staff.

To better understand how to improve delivery of nutritional supplements to residents at risk for weight loss, we plan on interviewing nursing staff the participating facilities to get their advice on how to do this. Specifically we will ask: 1) Was the order clear? 2) Did the information get to the nurses aides who assist residents with the meals and snacks? 3) Was the time written on the order convenient for them to administer the

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supplements (e.g., times when staffing is better)? 4) Would it have been easier to have nurses deliver the supplements to residents along with their medications rather than asking the nurses' aides to do it? 5) Could volunteers be used to provide assistance with supplement provision? 6) Do staff feel that a general order for a high protein supplement (as opposed to another type of snack) is not optimal for some residents given their knowledge of their food preferences? 7) Are there any cost constraints in providing high protein supplement shakes vs. other high protein snacks? 8) Were there competing demands with other care activities? 9) What else do staff think could help improve residents' oral intake?

Conclusion

This quality improvement intervention failed to show a specific physicians order for high protein supplements improved delivery between meals. Future studies may be able to focus on how to better administer high protein supplements or other favorite foods to those patients at high risk for weight loss and malnutrition.

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Prognostic Significance of Monthly Weight Fluctuations Among Older Nursing Home Residents

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Background. Although weight change in older persons has proven prognostic significance, it is not known whether monthly weights obtained by the clinical staff in long-term care institutions are reliable enough to be useful in identifying at-risk residents. The objective of this study was to determine whether an association exists between mortality risk and the intrarésident variation in weight in long-term care institutions.

Methods. For this study, 900 nursing home residents with a recently identified nutritional problem from 96 long-term care facilities in 8 states were randomly selected. At study entry, nutritional, health status, and demographic data were extracted from the nursing home chart or the Minimum Data Set. Weights obtained by the nursing home staff were recorded at baseline and during each of the subsequent 6 months. Cox proportional hazards regression analysis was used to assess relationships between weight parameters and mortality risk during the 7 months of observation.

Results. During the study, 435 (48%) participants had at least 1 monthly weight that differed from the previous month's weight by $\geq 5\%$; 163 (18%) participants had this magnitude of a 1-month weight change more than once. By controlling for the linear trend (i.e., slope) of each residents' weight change between the first to the last weight, the average month-to-month residual variability in the resident's weights was calculated. This residual variability or "average random fluctuation" in weight from 1 month to the next was $\geq 2\%$ in 229 (25%) participants and $\geq 3\%$ in 82 (9%) participants. Despite the large random fluctuation in the residents' weights, weight loss was an important prognostic indicator. Those who lost $\geq 5\%$ in any month had a 10-fold increased risk for death compared with those who gained weight (adjusted relative risk, 10.6; 95% confidence interval, 3.2 to 35.5). The average random fluctuation in weight was associated with an increased risk for death only at the upper 10th percentile for the population.

Conclusions. Many nutritionally compromised elderly nursing home residents experience significant bidirectional fluctuations in their weight from month to month. How much of this variability is due to measurement error is not known. However, a weight loss of $\geq 5\%$ in any month has important prognostic implications.

Weight loss is a common, potentially serious, yet inadequately studied problem among older nursing home residents (1-5). Much of what is known about the importance of weight loss in older populations is derived from community-based and hospital-based studies. These studies indicate a strong association between the amount of weight loss persons experience and their risk for subsequent adverse clinical events (6-9). Extrapolating from these various studies, the Long-Term Care Minimum Data Set (MDS) defines a loss of $>10\%$ of body weight within 180 days or 5% within 30 days as an important clinical threshold of concern for nursing home residents (10). When this threshold of weight loss is reached, the guidelines mandate that the resident be reassessed and a new nutritional care plan be devised that addresses the weight issue (10). Several nursing home-based studies provide evidence to support this mandate; they showed that residents who lost $>5\%$ - 10% of their body weight have higher short-term rates of death compared with those who remain weight stable or who gain weight (3-5,11). They also found that the association between weight loss and death remains strong even after controlling for age and other health status indicators. Whether implementation of the MDS guidelines leads to

improved clinical outcomes is not certain and remains an important question.

Retrospective analyses of large government data sets indicate 10% to 15% of nursing home residents meet the MDS criteria for significant weight loss at least once every year (2,12). Consequently, the potential impact of the MDS guidelines on overall mortality risk is large. However, it is not known whether targeting residents for more in-depth assessments based on these criteria is a valid strategy. Although weight change in older persons has prognostic significance, it is not known whether monthly weight measurements obtained by the clinical staff in long-term care institutions are reliable enough to be useful in identifying at-risk residents in a prospective manner. The few studies that identified a link between weight loss and death within the nursing home setting were retrospective and generally focused on very select resident populations (3-5,11). Several studies indicate that nursing home residents are just as likely to gain significant amounts of weight as they are to lose weight (3,12). This suggests that at least some of the weight fluctuation may be due to errors in measurement techniques or alterations in fluid balance rather than a true change in lean or fat mass. If measurement error is the major

contributor to weight fluctuations in many nursing homes, short-term weight change may not be a useful prognostic indicator. If fluid shifts are the more common cause of the fluctuations, the amount of month-to-month fluctuation in weight may indicate metabolic instability and have greater prognostic significance than simply the amount of weight lost during any measurement interval.

The purpose of this study was to determine whether there is an association between mortality risk and either (a) the 6-month average intraintraresidential monthly variation in recorded weight measurements, or (b) the relative change in weight during any single time interval among a national sample of nutritionally at-risk elderly nursing home residents. A secondary objective was to determine what baseline resident characteristics were associated with greater 6-month average intraintraresidential monthly variation in weight.

METHODS

All participants were recruited as part of the GAIN (Geriatric Anorexia Nutrition) Registry, a prospective observational study of nutritionally at-risk elderly nursing home residents. The registry was developed by an advisory panel composed of thought leaders in the fields of geriatric nutrition and long-term care, including physicians and consultant pharmacists. An independent scientific review committee (Chesapeake Research Review, Columbia, MD) consisting of research and regulatory specialists, as well as nonscientific representatives and medical ethicists, reviewed the project's parameters to ensure that adequate safeguards were present to maintain appropriate clinical management and patient confidentiality. All data collected from the resident's medical record were blinded and coded in a manner that maintained strict patient and facility confidentiality. All data were reported in the aggregate, with no mention of specific residents, facilities, or physicians. The study was strictly observational and did not impose any research-driven interventions.

Inclusion Criteria: Definition of Nutritional Risk

NCS Healthcare, a leading long-term care pharmacy provider, recruited 96 facilities for the study. The characteristics of these facilities have been described previously (13). During a 3-month period from August to November 1998, consultant pharmacists reviewed the nursing home medical records and most recent MDS of each resident within these facilities. Residents were considered eligible for inclusion in the registry if they were capable of oral feeding at the time of the initial review and they had a nutritional problem identified within the previous 3 months that placed them at nutritional risk. For the purpose of the study, nutritional risk was defined as weight loss, poor appetite, or both according to one of the following: (a) MDS documentation of poor appetite (the resident leaves 25% of food uneaten at most meals [MDS 2.0, Section K 4c; MDS+, Section L 4e]), (b) chart documentation of poor appetite prompting dietary consultation, (c) MDS documentation of a weight loss of 5% or more within a 1-month period (MDS Section K 3a), or (d) chart documentation of weight loss prompting dietary consultation.

To limit costs, GAIN registry entry was limited to a stratified random sample of residents. From the list of residents who met the entry criteria, a maximum of 20 were chosen at random for registry entry from each facility. Subsequent to enrollment, each resident's nursing home records and any updated MDS data were reviewed monthly for 6 months by the long-term care consultant pharmacist in charge of data collection. Survival data were collected for 7 months.

To be eligible for entry into the current study, residents had to remain in an intermediate or skilled nursing home bed for at least 2 months. Of the 1000 residents from 96 long-term care facilities initially enrolled in the registry, 100 failed to meet the study entry criteria. This included 15 who were residing in an assisted living bed and 85 who either died or were discharged before the third month of observation. This left a final study sample of 900 residents.

Baseline Variables

Variables collected at baseline included demographic data, diagnoses, medications, appetite assessment, overall activity of daily living (ADL) functional capacity, level of feeding dependence, and number of pressure sores. Appetite was rated using a scale of 0 to 3: poor = 0 (resident consumes 0%–49% of meals); fair = 1 (resident consumes 50% to 74% of meals); good = 2 (resident eats 75%–89% of meals); and excellent = 3 (resident eats 90%–100% of meals). Functional capacity was rated as 0 (completely independent), 1 (needs assistance with some ADLs), or 2 (needs assistance with all ADLs). Level of feeding dependence was rated as 0 (independent, feeds self), 1 (requires set-up only), 2 (requires assistance with feeding beyond set-up), or 3 (totally dependent on staff for feeding). The presence of pressure sores was based on chart and MDS documentation. Residents were not examined and the severity of pressure sores was not determined. When available, baseline variables were taken from categories reported on the MDS. Otherwise, they were obtained from the nursing home chart.

Weight and Mortality Data

During the first month of observation, all participants were weighed 2 or more times by the nursing home staff. The first 2 weights obtained were recorded. In the subsequent 6 months (*i.e.*, the second through the seventh month of observation), the first weight obtained by the nursing home staff in that month was recorded. Any death, discharge, or loss to follow-up during the 7 months of observation was recorded.

Statistical Methods

All analyses were conducted using SAS statistical software (Version 8.0, SAS Institute, Cary, NC). A probability value of .05 or less was considered significant.

Intraresidential weight variability.—In the first set of analyses, several methods were used to evaluate intraresidential weight variability from month to month. The average of the first 2 weights obtained for each resident was considered the resident's baseline weight. To determine how many times a resident's weight changed by >5%–10%, the percentage change in weight during each monthly interval was

calculated. To determine the average monthly intraindividual variability in weight, other analytic approaches were used. One method (method 1) involved taking the absolute value of the difference between each weight and the weight from the previous month, expressing the difference as a percentage of the baseline weight, and then calculating the average. However, this method did not consider the fact that part of the intraindividual month-to-month variability in the weight measurements was a result of the trend (i.e., slope) in weight over time. For residents who gained or lost weight in a steady (linear) manner, their actual monthly weight would equal their predicted weight calculated from the slope. Any variability about the slope could be considered to represent random fluctuations in weight each month. This "random fluctuation" is equivalent to the residuals in least-squares regression. To obtain a better estimate of possible random fluctuations in the participants' weights with time, 2 additional methods were used to evaluate intraindividual month-to-month weight variability.

For the first of the alternate methods (method 2), the slope (i.e., predicted change in weight per month) was set equal to the difference between the last weight and the first weight and then divided by the number of months of observation. From the slope, each participant's "predicted" weight for each month of observation was calculated. The participant's average month-to-month weight variability was set equal to the average of the absolute value of the difference between the actual weight and the predicted weight each month and expressed as a percentage of baseline weight. In recognition that this method would be strongly influenced by outlier weight measurements at the beginning or end of the observation period, intraindividual weight variability was also calculated using least-squares regression (method 3). This was accomplished using SAS software and the "by" statement within the procedure regressing weight (expressed as a percentage of baseline) by month. In this manner, the regression line for weight by time and the residuals were calculated for each participant. The participant's average month-to-month weight variability was then set equal to the average of the absolute value of the residuals for each month.

We expected that the latter 2 methods of calculating average month-to-month weight variability would produce much larger values than the first method for participants who had a large weight change during 1 month but otherwise very little weight change in the other months. For this reason, we assumed that the method that produced the smallest estimate of average month-to-month weight deviation for a participant also gave the best estimate of the average amount of possible random fluctuation in that person's weight with time. Consequently, we set the variable "average random fluctuation" equal to the smallest of the three estimates of variability for the participant. We evaluated associations between the average random fluctuation and baseline participant characteristics using the Wilcoxon rank sum test.

Relationship between weight change and mortality risk.—In the second set of analyses, we evaluated the relationship between weight change and mortality risk using Cox proportional hazards regression analysis. We tested the following hypotheses: (a) compared with the remaining

residents, those with the greatest (i.e., upper 10th percentile) average random fluctuation in weight each month would have a greater mortality risk during the 7 months of observation; (b) compared with the remaining residents, those who lost $\geq 10\%$ of their weight within 6 months would have a greater mortality risk during the 7 months of observation.

To test each hypothesis, we created a time-to-event and a status variable for each participant. The status variable indicated whether the event was death or the last follow-up. Because death was recorded at each monthly follow-up visit, the time to event was entered as the month of death or last follow-up (i.e., months 2 to 7). All participants who survived the 7-month review period were assigned an event time of 7. Four dummy weight loss variables were also created. If a resident's last weight represented a loss of $\geq 10\%$, the variable "lost $\geq 10\%$ " was set to 1 and the other 3 dummy variables set to 0. If a participant's last weight represented a loss of 0 to $< 10\%$, the variable "lost $< 10\%$ " was set to 1 and the other 3 dummy variables were set to 0. The other 2 dummy variables, "gain $< 10\%$ " and "gain $\geq 10\%$ " were set in a similar manner.

To test the first hypothesis, a dummy weight fluctuation variable was created and set to 1 if the resident's average random fluctuation in weight each month was in the upper 10th percentile (i.e., $\geq 3\%$). Otherwise it was set to 0. To determine whether $\geq 3\%$ fluctuation in weight each month was associated with greater mortality risk after adjusting for the direction of weight change, all 5 dummy variables were entered into the analysis. One of these 5 variables served as the reference category as determined automatically by SAS software.

To test the second hypothesis, the 4 dummy weight loss variables were entered into the analysis. To control for potential confounders, a second analysis was run with 10 other correlates of death (i.e., indicators of health and nutritional status at study entry) entered into the analysis using a stepwise procedure after the 4 dummy weight loss variables were forced into the model. The 12 control variables used were age, appetite score, body mass index, length of stay, number of diagnoses, number of pressure sores, ADL functional score, feeding dependence score, sex, number of medications, and diagnosis of congestive heart failure or chronic obstructive pulmonary disease. These variables were chosen because they had previously been found to be associated with death in this cohort of nursing home residents (13).

Time-dependent covariate analyses.—To test the hypothesis that a weight loss of $\geq 5\%$ in any month was associated with an increased risk for death, Cox proportional hazards regression analyses were conducted using time-dependent variables. As before, a time-to-event and a status variable were created for each participant. Three time-dependent dummy variables were also created (lost $\geq 5\%$, no change, and gained $\geq 5\%$) and forced into the model. At each event time (i.e., each month), the variables were reset to 0 or 1 depending on how much the participant's weight had changed from the previous month. To control for potential confounders, a second analysis was conducted in the same

Table 1. Baseline Patient Characteristics

Variable	Mean \pm SD (Range)
Age (years)	86 \pm 8 (65-104)
BMI (kg/m ²)	21.2 \pm 4.1 (10.3-37.5)
Diagnoses	6 \pm 2 (1-15)
Medications	7 \pm 4 (1-18)
LOS in facility prior to study (years)	2 \pm 3 (0-21)
Variable	Percent (Number)
Gender (% female)	76 (688)
Pressure sores (% with)	22 (194)
Patients on supplements	78 (699)
Entry criteria (nutritional problem)*	
MDS Weight problem	84 (752)
MDS Appetite problem	66 (597)
Chart documented problem	59 (535)
Feeding assistance required	
Independent/self-feed	20 (179)
Requires set-up only	35 (311)
Requires assistance	28 (251)
Fed by staff	18 (159)
Activity of daily living (ADL) level	
Independent in ADLs	13 (118)
Requires some staff assistance	53 (477)
Requires assistance with all ADLs	34 (305)

Notes: *Percentages add to more than 100 since more than one category often applied.

SD = standard deviation; BMI = body mass index; LOS = length of stay; MDS = Minimum Data Set.

manner, except the covariates were entered using a stepwise procedure.

Another set of similar analyses was conducted to determine whether a weight loss of $\geq 10\%$ in any 3-month interval was associated with an increased risk for death. In these analyses, the time-to-event variable was entered as the month of death or last follow-up beginning with month 3. During each event time, the time-dependent variables were reset depending on how much the resident's weight had changed from 3 months before.

RESULTS

Tables 1 and 2 present baseline characteristics of the study population. At study entry, the typical study participant was 86 years old, had resided in the facility for a median of 1 year (interquartile range, 0.2-3.0 years), and had a body mass index of 21 kg/m² (range, 10-38 kg/m²). Nearly one quarter of the study participants had pressure ulcers and a one third were completely dependent on the staff for assistance with ADLs. During the 7 months of observation, 122 (14%) participants died.

Intraresidential Weight Variability

As indicated in Table 3, 435 (48%) participants had at least 1 recorded weight during the study that differed from the previous month's weight by $\geq 5\%$. One hundred sixty-three (18%) participants had this magnitude of a 1-month weight fluctuation more than once. The maximum 1-month loss of weight for each participant ranged from 0% to 38%. Sixteen (1.8%) residents had at least 1 weight that differed from the previous month's weight by $\geq 15\%$. A similar

Table 2. Most Prevalent Diagnostic Problem Categories

Category	Percent (Number)
Dementia	60 (541)
Hypertension	41 (366)
Depression	37 (331)
Arthritis	30 (267)
Gastrointestinal disorder	26 (236)
Coronary artery disease	23 (205)
Congestive heart failure	20 (179)
Cerebral vascular accident	18 (160)
Diabetes	15 (133)

number (14 residents) had an apparent 1-month weight gain of $\geq 15\%$ on at least 1 occasion.

When calculated by the method just described, the average random fluctuation in each resident's weight ranged from 0% to 8.2% per month. The average random fluctuation in weight was $\geq 2\%$ per month in 229 (25%) residents and $\geq 3\%$ per month in 82 (9%) residents. When only the first method of calculating monthly intraresidential weight fluctuation was used (i.e., method 1, which did not account for weight trend), 523 (58%) residents had an average weight change of $\geq 2\%$ per month, 249 (28%) residents had an average weight change of $\geq 3\%$ per month, and 117 (13%) residents had an average weight change of $\geq 4\%$ per month.

Table 4 lists the baseline resident characteristics that were significantly ($p < .01$) associated with monthly average random fluctuation in weight. In all cases, the direction of the association was the same, and the more medically complex residents (e.g., recent admission, active infection, partially or completely dependent on staff for assistance with ADLs) had the greatest variability. However, the clinical relevance of these findings is questionable because the actual differences in the variability between the groups were rather small for all of the variables listed. Medical diagnoses (e.g., previous cardiovascular accident, congestive heart failure, hip fracture, chronic venous insufficiency) were not associated with average random fluctuation in weight.

Relationship Between Weight Change and Mortality Risk

As hypothesized, a very high (i.e., upper 10th percentile) average random fluctuation in weight per month during the 7 months of observation was strongly associated with death. After controlling for the final amount of weight change (i.e., how much weight was lost or gained by the study's conclusion), the results remained significant (adjusted relative risk [ARR], 2.1; 95% confidence interval [CI], 1.3 to 3.5). Lesser amounts of weight fluctuation (even at the upper 25th percentile) were not associated with death (ARR for the upper 25th percentile, 1.1; 95% CI, 0.7 to 1.7).

As shown in Table 5, a weight loss of $\geq 10\%$ within 6 months was associated with an increased risk for death during the 7 months of observation. After controlling for age and health status at baseline, the results remained highly significant (ARR, 8.3; 95% CI, 3.1 to 21.8).

Time-Dependent Covariate Analyses

As shown in Table 6, residents who lost $\geq 5\%$ of their weight in any month had a 10-fold higher adjusted risk for

Table 3. Percentage of Participants With a Significant 1-Month Change in Weight on One or More Occasions During the Study*

Type of Weight Change	% (Number) of Participants Who Experienced This Type of Weight Change
Increased by $\geq 5\%$ in 1 month one or more times [†]	28 (254)
Decreased by $\geq 5\%$ in 1 month one or more times	32 (285)
Changed (in either direction) by $\geq 5\%$ in 1 month	48 (435)
Increased by $\geq 10\%$ in 1 month one or more times	6 (50)
Decreased by $\geq 10\%$ in 1 month one or more times	6 (58)
Changed by $\geq 10\%$ in 1 month one or more times	10 (93)

Note: *A significant 1-month weight change defined as $\geq 5\%$.

[†]That is, during the study, had at least one recorded weight that was $\geq 5\%$ higher than the prior month's weight.

death compared with those who had a similar magnitude of weight gain. Similarly, a weight loss of $\geq 10\%$ in any 3-month interval was associated with an 8-fold increased risk for death after controlling for age and other health status variables.

DISCUSSION

As shown in this study, it is not unusual for the recorded weight of older, nutritionally at-risk nursing home residents to fluctuate by $>3\%$ from month to month. Even when we consider the trend (or slope) in weight change, much of this variability persisted. Further study is needed to determine whether this amount of month-to-month variability in weights is unique to those residents who are nutritionally at-risk. It would also be important to determine whether the amount of variability is greater in some nursing homes than in others. Both the slope of weight change and the amount of apparent random month-to-month variability in the weights may be an indicator of the quality of care provided in the nursing homes. Certainly, nursing homes with higher than average month-to-month variability in their weights would want to evaluate carefully their procedures for obtaining weights within their facilities. Much of the apparent random variability may be related to poor measurement techniques, although this is not proved. Similarly, facilities with a high prevalence of progressive weight loss should carefully assess their programs of nutritional care. Although weight loss is sometimes unavoidable in the frail elderly, evidence suggests that a high incidence of weight loss within a facility indicates poor quality of care (14-16).

As defined in this study, the average random fluctuation in weight was associated with death only when it was relatively large (i.e., the upper 10th percentile for the cohort). This association may be confounded by illness severity. As we found in this study, those with the greatest month-to-month variability in weights tended to be the frailer, more functionally dependent residents. These residents are often the most difficult to weigh. They are probably also more likely to experience significant fluid shifts. However, we could not investigate this possibility in this study. Although having heart failure, venous insufficiency, dependent edema, or other similar diagnoses listed on the problem list was not associated with greater weight fluctuations, a more careful assessment of monthly medication adjustments and changes

Table 4. Participant Characteristics Significantly Associated With the "Average Random Fluctuation" in Weight Each Month

	Number of Participants	"Average Random Fluctuation" in Weight	
		Median (Interquartile range)	p Value [†]
A recently resolved infection			
Yes	30	2.0 (1.0-2.8)	.008
No	870	1.4 (0.9-2.0)	
Under therapy for active infection			
Yes	37	1.7 (1.2-2.8)	.007
No	863	1.4 (0.9-2.0)	
Completely independent in ADLs			
Yes	118	1.2 (0.7-1.7)	.003
No	782	1.4 (1.0-2.0)	
BMI < 21 kg/m ²			
Yes	469	1.5 (1.0-2.1)	.001
No	431	1.3 (0.9-1.8)	
LOS stay in nursing home < 15 days			
Yes	112	1.5 (1.1-2.4)	.003
No	788	1.4 (0.9-2.0)	

Notes: [†]The "average random fluctuation" in weight is expressed as a percentage of baseline weight. See text for definition and method of calculating.

[†]Based on Wilcoxon Rank Sum test.

ADLs = activities of daily living; BMI = body mass index; LOS = length of stay.

noted on physical examination would be needed to determine how much of the weight fluctuation was a result of fluid shifts. A listing of diagnoses is not usually a good indicator of disease activity or mortality risk (17,18). Given the weakness of the associations between average random fluctuation in weight and both baseline characteristics and outcomes, further study is needed to determine whether this type of weight variability is an important health status indicator.

Confirming the results of previous investigations (3-5,11), our study clearly shows that the relative amount of weight change during any single time interval among a national sample of nutritionally at-risk elderly nursing home residents is strongly associated with death. Although the difference in mortality risk between weight gain and weight stability was not statistically significant, we observed a trend toward lower mortality risk with weight gain. In contrast, weight loss was strongly associated with death. After we adjusted for baseline health status, those who lost $\geq 10\%$ of their weight within 6 months were more than 8 times as likely to die during the observation period compared with those who gained this amount of weight. Despite the amount of what appeared to be random fluctuations in the residents' weights, we also found that a 1-month weight loss of 5% or more was a powerful predictor of death. The ARR of death for those with this amount of weight loss was more than 10 times that of those who gained weight during the month. A loss of $>10\%$ of baseline weight in 1 month was associated with a 20-fold increased risk for death (ARR of death is >20 , data not shown).

We could not determine how aggressively the participants were being treated for their medical or nutritional problems, or whether the nursing homes were responding appropriately to

Table 5. Relationship Between Weight Change and Mortality During the 7 Months of Observation

Amount of Weight Change ^a	Unadjusted Relative Risk (95% CI)	Adjusted Relative Risk ^b (95% CI)
Loss of $\geq 10\%$	6.5 (2.5–16.9)	8.3 (3.1–21.8)
Loss of $< 10\%$	2.9 (1.2–7.3)	3.4 (1.3–8.5)
Gain of 0% to $< 10\%$	1.3 (0.5–3.5)	1.5 (0.6–4.0)
Gain of $\geq 10\%$	—	—

Notes: ^aAmount of weight change is the difference between the baseline weight and the last weight obtained, all expressed as a percentage of the baseline weight.

^bThe following control variables entered the model: age, appetite score, body mass index, length of stay, number of diagnoses, and number of pressure sores.

CI = confidence interval.

their weight changes. Some residents may not have been considered candidates for aggressive nutritional or medical care. However, loss of weight is an important quality indicator in nursing homes. In a future study, it would be important to determine how frequently the MDS-associated resident assessment protocols were appropriately triggered with each episode of weight change. Particularly for those residents who lose weight, facilities should be conducting careful assessments to exclude reversible causes. They should also evaluate the quality of their feeding assistance programs, because this is often neglected in many nursing homes (19,20).

This study has several potential limitations. Among these was the short period of observation. We do not know whether the weight trends or the relationship between weight change and death remain significant over longer time intervals. Another limitation was the targeting criteria used. Because we included only residents identified to be at nutritional risk in this study, the results may not provide an accurate assessment of the amount of month-to-month weight variability within the total population of nursing home residents. Another study comparing weight variability in residents identified to be at nutritional risk and the remaining residents might be revealing. In the current study, the month-to-month variability in the weights was large even after the trend (or slope) of weight change in each participant was considered. Poor measurement technique, medical instability of the residents, or other factors may have contributed to this variability. Assuming that nutritionally stable residents would be more medically stable, a comparison study of nutritionally at-risk and nutritionally stable residents would provide further evidence of the quality of the weight measurements. A careful assessment of each resident who has a weight change of $> 3\%$ to 5% in any month would also be important but may not lead to the identification of the source of the change in all cases (21).

This study relied solely on the data recorded by the clinical staff within each facility. It was beyond the scope of the study to verify the accuracy of these data by repeating any of the weight measurements. It is logical to assume that the best way to ensure the accuracy of weights obtained from nursing home residents is to have appropriately trained staff with adequate time and equipment to obtain these measurements. Among other things, the training would emphasize the importance of using a consistent approach to performing

Table 6. Relationship Between Weight Change in a Given Time Interval and the Risk of Death by the End of the 7 Months of Observation^a

	Unadjusted Relative Risk (95% CI)	Adjusted Relative Risk ^b (95% CI)
Amount of Weight Change in Any 1-Month Interval		
Loss of $\geq 5\%$	9.9 (3.0–32.9)	10.6 (3.2–35.5)
Nonsignificant change ^c	1.9 (0.6–6.2)	2.3 (0.8–7.4)
Gain of $\geq 5\%$	—	—
Amount of Weight Change in Any 3-Month Interval		
Loss of $\geq 10\%$	6.1 (1.8–21.0)	8.1 (2.3–29.0)
Loss of 5% to $< 10\%$	4.1 (1.2–13.7)	5.0 (1.5–17.0)
Nonsignificant change ^c	1.2 (0.4–3.8)	1.5 (0.5–5.1)
Gain of 5% to $< 10\%$	1.6 (0.5–5.6)	1.9 (0.5–6.8)
Gain of $\geq 10\%$	—	—

Notes: ^aRelative risk of death determined using Cox Proportional-Hazards Regression Analyses with weight change entered as time-dependent variables. See text for details.

^bAge, appetite score, body mass index, length of stay, number of diagnoses, and number of pressure sores came into the model.

^cNonsignificant weight change defined as a change of weight of $< 5\%$ in either direction.

CI = confidence interval.

weight measurements, such as using the same scale, taking the weights at the same time each day, and ensuring that the resident is wearing the same amount of clothing. Having a team trained in this manner to recheck the nursing home weights would provide more insight into the possible causes of the weight variability.

Although this type of data verification was not possible in this study, the study results are still important. Clinicians in practice must rely on the weight measurements obtained by the nursing homes. This study indicates that these measurements have important prognostic implications, even if they are not as accurate as they could be. Many nutritionally compromised elderly nursing home residents experience significant bidirectional fluctuations in their weight from month to month. How much of this variability is a result of measurement error is not known. However, a weight loss of $\geq 5\%$ in any month has important prognostic implications.

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Is It Possible To Increase Weight and Maintain the Protein Status of Debilitated Elderly Residents of Nursing Homes?

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Background. The care of elderly persons in chronic care nursing wards is generally complicated by nutritional problems such as weight loss and worsening protein status. An inability or refusal of the patient to consume enough food often necessitates the use of expensive commercial formulas for nutritional support. The purpose of this study was to determine whether the use of an in-house (high-protein, milk-based) low-cost formula with added minerals and vitamins for total nutritional support would be effective in maintaining weight and protein status of patients in the long term.

Methods. Participants were recruited from five nursing care units of a single geriatric facility. All residents who required formula feeding were followed prospectively. The formula was provided either as a pudding or a milkshake for oral feeding or as a liquid for tube feeding and served as the sole source of nutrition. Data were collected regarding the participants' weight (monthly), serum albumin level (periodically), and the manner of formula administration (oral, nasogastric, or gastrostomy tube).

Results. One hundred forty-three participants who received this formula were followed for a maximum period of 6 years. Mean weight increased by 5 kg during the first year and remained stable thereafter. Those participants who died within 6 months had no increase in weight. The long-term mean serum albumin level of all participants was an acceptable 4 g/dL.

Conclusion. The long-term use of an inexpensive in-house formula for total nutritional support increased weight and maintained serum albumin levels in most of the chronically ill elderly nursing care patients who participated in the study.

THE inability to maintain the weight and protein status of elderly nursing home patients is common, and the compromised nutritional state that results may be life-threatening. Varying but consistent reports exist of a high incidence of protein-calorie malnutrition in residents of long-term care facilities (1,2). The prevalence of malnutrition in nursing homes is common and may be present in a significant proportion of the patient population (3). Weight loss frequently occurs and may be reversible, with the single most common reported cause being depression. Other important potentially treatable causes include psychotropic drug reduction and medications that cause anorexia (4,5). The relation between undernutrition and an increased risk for death in older patients has been well described (6). A recent meta-analysis has shown that protein and energy supplementation in the elderly who are at risk for death as a result of malnutrition was associated with a lower mortality rate (7).

The maintenance of nutritional status in the elderly persons is often difficult. In those with degenerative dementia, "uncontrolled weight loss is almost inevitable in the later stages, despite quality of care" (8). Elderly tube-fed nursing home patients with pressure sores were noted to be malnourished despite receiving a diet high in calories and protein (9). Others have reported that despite the provision of apparently adequate calories and proteins by means of enteral feeding, many elderly patients lose weight when feeding is continued longer than 3 months (10,11). The authors of a recent report noted that the incidence of protein-calorie malnutrition in tube-fed patients was significantly greater than that of freely eating elderly residents of a nursing home (12).

Despite the high incidence of protein-calorie malnutrition in older persons, it is frequently not recognized. Even when

detected, often it is not treated. Until recently, the prevailing attitude in the literature has been one of acceptance and futility. It has been suggested that the weight loss that is frequently seen in patients with Alzheimer's disease may be due either to a metabolic aberration inherent in the disease or to management issues relating to their feeding (13). In fact, Blaum and associates suggest that "it is not known whether it is possible to improve nutritional status in some or all undernourished nursing home residents ..." especially in those with end-stage dementia (14).

Other investigators observed that only 50% of patients with dementia and inadequate oral intake are likely to survive more than 6 months after percutaneous endoscopic gastrostomy placement (15). The most significant factor that predicted poor survival in patients at 6 months was a serum albumin concentration less than 2.8 g/dL.

Therefore, the use of expensive commercial formulas to provide nutritional support to chronically ill elderly patients, especially those with degenerative dementia, is often only partially effective. We developed an in-house high-protein, milk-based, low-cost formula for economic reasons. Our initial observations using this formula for total nutritional support suggested a positive effect on the nutritional status of our patients (16). Thus, we conducted a prospective study to determine the efficacy of this formula.

METHODS

Formula

Because of the high cost of the available commercial formulas, we developed an in-house high-protein, milk-based, low-cost formula with vitamin and mineral supplementation to meet the

Table 1. Baseline Characteristics of the Patient Population

Patients (n)	143
Median age (y)	83
Age range (y)	60-103
Distribution according to age, n (%)	
60-79 y	38 (26.6)
80-89 y	80 (55.9)
90+ y	25 (17.5)
Female sex, n (%)	87 (61)
Baseline diagnoses, n (%) ^a	
Dementia	94 (66)
Stroke	61 (43)
Heart disease	53 (37)
Diabetes Mellitus	29 (20)
Fractures	31 (22)
Feeding method, n (%)	
Tube only	123 (86)
Oral and tube	14 (9.8)
Oral only	6 (4.2)

Note: ^aPatients may have more than one diagnosis.

nutritional needs of the patients. The formula consisted of regular foods (nonelemental, nonhydrolyzed components) and contained lactose. A low-lactose option by conversion with lactase enzyme was available for lactose-intolerant patients. The formula was prepared under accepted sterile conditions, and regular microbiological cultures were performed to exclude pathogens. The formula was stored in a refrigerator and clearly marked for batch number and shelf life.

A 250 mL unit of formula provided approximately 340 calories and 14 g protein, 41 g carbohydrate, 14 g fat, and 2.9 g fiber (2.6 g of which was insoluble fiber). The formula comprised the sole source of nutrition, and patients received from 3 to 6 units daily, depending on their nutritional needs (thus providing between 1020 and 2040 calories, and 42 to 84 g protein per day). The formula was administered orally as a milkshake or pudding or as a liquid for enteral feeding. The total cost of the formula in 1999, including materials and preparation, was \$1.37 per liter, compared with \$3.27 per liter for Ensure-Plus, a similar commercial formula (Abbott Laboratories, Abbott Park, IL).

Participants

The study population included elderly patients from 5 nursing care units of a single geriatric facility. We prospectively followed all patients who required long-term formula feeding. Treating physicians made the decision to commence total formula feeding based on clinical factors. The indication for the commencement of total formula feeding was an inability to achieve adequate nutritional intake using regular foods or partial supplemental feeding. Causes included severe appetite loss or refusal to eat, neurologic dysphagia, or increased metabolic or nutritional demands. Data were collected regarding the participants' weight (monthly), serum albumin level (periodically), and the manner of formula administration (oral, nasogastric, or gastrostomy tube). Patients were followed until their death, until the end of the study, until they recommenced eating regular food, until they were transferred to other institutions, or until their formula was changed to commercial supplements (because of the need for sterile formulas).

Table 2. Characteristics of Patient Follow-up

Patients (n)	143
Months of follow-up, n (%)	
0-6	79 (55.2)
7-12	33 (23.1)
13-24	16 (11.2)
25-36	6 (4.2)
37-60	9 (6.3)
Reasons for ending follow-up, n (%)	
Death	92 (64.3)
Improvement	10 (7.0)
Other formula	13 (9.1)
Transfer	4 (2.8)
End of study	24 (16.8)
Feeding method, n (%)	
Tube only	123 (86.0)
Oral and tube	14 (9.8)
Oral only	6 (4.2)

Statistical Analyses

We computed means and tables using SPSS for Windows software (Chicago, IL). We analyzed weights using the MLWIN 1.1 program and a repeated-measures method that deals with missing data (17,18).

RESULTS

We included 143 patients in the study. Their ages ranged from 60 to 103 years, with a median age of 83 years. Table 1 includes a description of the baseline characteristics of the patient population. We noted an average weight loss of 1.4 kg in the 6-month period before the study began. The maximum period of follow-up was 6 years, with most patients ($n = 112$, or 78% of the patient population) followed for a period of up to 1 year. Table 2 lists characteristics of participant follow-up.

An analysis of all available monthly weights during a period of 1 year for all participants showed an increase in weight of 5 kg (from 52 to 57 kg). In assessing all available weights every 3 months for 2 years, we noted an initial increase in weight in the first year of follow-up, with weight stabilizing thereafter (Figure 1). Because the use of "all available weights" may lead to a comparison of different participants at each period, we repeated the assessment and included only patients with weight measurements at each time period (113 patients) (Figure 2), with results that were nearly identical to those in the initial analysis.

We assessed changes in weight over time for all available weights using multilevel models. We performed the repeated-measures method with missing data to obtain a linear model of weight with time, in which there were two different curves, one for the first 23 months and another for the period 24 to 60 months. The model assumed different inclines for each person (random effect), and we looked at the mean weight of all participants. In the first 23 months, the mean change in weight for each month was 0.319 kg ($p < .001$). The mean change for 24 to 60 months was only 0.174 kg ($p = .02$). The difference between the inclines of these two periods was significant ($p = .002$). When we added to the linear model the square of the time, the difference was not significant, and thus we include here the linear model.

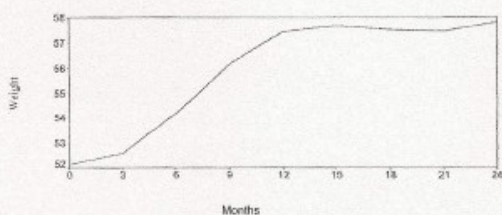


Figure 1. Mean 3-month weights (in kilograms) during a period of 24 months are shown (all available weights in 143 patients).

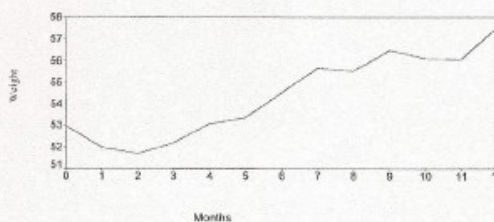


Figure 3. Mean monthly weights (in kilograms) during a period of 12 months are shown for patients 60-84 years old (all available weights).

When we analyzed the effect of age on these findings, we found that participants aged 60 to 84 years displayed an initial slight decrease in mean weight followed by a subsequent increase of 4 kg during the period of 1 year (Figure 3). An even greater increase in mean weight during the year occurred in participants older than 85 years, without a similar initial decrease in weight (Figure 4).

Figure 5 shows the mean serum albumin level measured in the initial 3 months of formula feeding and thereafter at 9 to 12 months. We found that stable, acceptable mean serum albumin levels greater than 4 g/dL were maintained throughout the study.

DISCUSSION

The results of this study suggest that by using an in-house formula for total nutritional support we maintained both the weight and the protein status of elderly, chronically ill patients cared for in nursing units. This finding is encouraging, because previous studies have suggested that a deterioration in the nutritional status of such patients, especially in those with degenerative dementia, is almost inevitable.

We found that not only did the weight and protein status of the participants stabilize but they had a significant initial weight gain in the first 2 years of feeding. The weight was maintained and even increased slightly for an extended period (5 years). Weight subsequently decreased after 18 months of follow-up only in patients older than 85 years.

Weight loss is one of the most important indicators of malnutrition. Both low body weight and weight loss are highly predictive of morbidity and death in elderly persons. Poor nutritional status, partly reflected by weight loss, is a contributing factor in the development of pressure sores (19-21), and it has also been related to impaired immunity (22). Nutritionally compromised patients in nursing homes have a greater risk for development of fevers and infections (23) and have a higher mortality rate (6,24). Thus, weight

maintenance plays a major role in decreasing morbidity and mortality risks in frail elderly persons (7).

Participants who died within 6 months had no increase in weight. This possibly represents a group of patients in poor general physical condition in whom weight loss and increased mortality rates would be expected. However, their nutritional status remained stable during the study, which may reflect a positive outcome.

The timing of the commencement of formula feeding is important, and supplemental formula feeding should be initiated whenever the patient is not able to achieve an adequate nutritional intake. In our study, total formula feeding was begun early, as evidenced by the relatively mild decrease in weight in the period before the study. This is especially important when the patient is expected to require long-term feeding or has a significant increase in nutritional needs. Adequate professional dietetic care, as well as physician and nursing awareness of the possible consequences of malnutrition in these patients, will determine the timely initiation of nutritional support.

The use of our formula was associated with an acceptable long-term mean serum albumin level of more than 4 g/dL. This is in contrast to the observation that despite a seemingly adequate level of protein and energy intake, approximately one third of geriatric patients who receive enteral feeding with a formula providing high energy and protein nutrition were noted to have persistently low serum albumin levels (25). Serum albumin is a valid indicator of protein status in elderly persons. As noted earlier, the only factor that predicted poor survival in tube-fed geriatric patients at 6 months was a serum albumin concentration less than 2.8 g/dL (15). We have noted that the development of pressure sores is frequently preceded by a decrease in serum albumin level with the use of commercial formulas, and this requires further investigation.

Very few patients required a low-lactose formula, which was

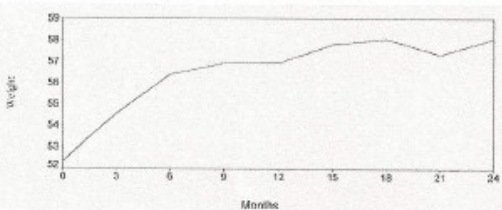


Figure 2. Mean 3-month weights (in kilograms) during a period of 24 months are shown (no missing weights, 113 patients).

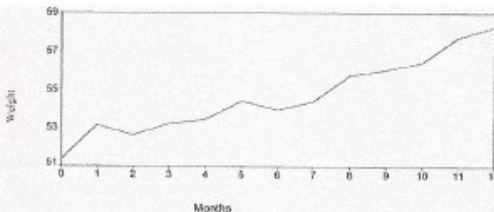


Figure 4. Mean monthly weights (in kilograms) during a period of 12 months are shown for patients older than 85 years (all available weights).

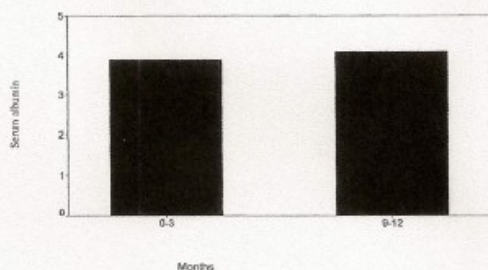


Figure 5. Mean serum albumin levels (in grams per deciliter) at 0-3 months and 9-12 months of follow-up.

surprising given the relatively high degree of lactose intolerance that is reported for this population in the literature, which explains the current emphasis on lactose-free commercial formulas. We found that by using a formula containing lactose and fiber, we were able to relieve the severe constipation that generally accompanies tube feeding in geriatric patients.

The apparent nutritional advantages of this in-house formula over commercial formulas need to be evaluated further. The preparation of the formula involves the use of readily available constituents of high nutritional value. The availability of the formula as a pudding or milkshake makes it palatable to the patients and may thus encourage them to continue eating orally and delay the need for tube feeding. Oral feeding is considered superior to tube feeding, especially in patients with advanced dementia (26). The use of orexigenic agents may be beneficial in stimulating the appetite of some patients with anorexia and weight loss (27). We did not use these agents during the study and we recognize that their use may have delayed or prevented the need for total formula feeding.

Of the 143 participants, approximately 12% survived longer than 3 years. Considering that most of our patients had end-stage dementia and stroke, this degree of survival is possibly better than expected (10,28). We believe the participants had improved quality of life, and this observation should be investigated in further studies, as should such outcome measures as recovery after surgery and the healing of pressure sores.

In conclusion, the inability to maintain the weight and protein status of frail elderly nursing home patients is common and leads to an increase in morbidity and death. Until now, the attitude in the medical community has been one of acceptance and futility. Our study has shown that it is possible to increase weight and maintain the protein status of debilitated elderly patients in nursing homes by using a simple, inexpensive in-house formula for total nutritional support.

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Internasjonale undersøkelser på sykehus viser at det er stor enighet blant sykepleiere og leger om at ernæring skal prioriteres i pasientbehandlingen, samtidig som praksis viser at dette ofte blir nedprioritert. Journalgjennomganger viser at ernæringsstatus og kosthold i liten grad dokumenteres. Norge ligger klart etter både Danmark og Sverige i forhold til å ha en systematisk tilnærming til ernæring som del av pasientbehandling.

Levealder og folkehelsen har utviklet seg positivt etter andre verdenskrig, med den følge at vi nå har flere gamle enn tidligere. Utfordringen i eldreomsorgen er å optimalisere livskvaliteten; hva kan vi gjøre for å bidra til at dagen i dag og kommende dager skal være best mulig? Maten er kilde til glede i hverdagen med nytelse, harmoni og fellesskap. For andre er matinntaket forbundet med problemer og opplevelse av maktesløshet. Hvorfor forsømmer norske helsearbeidere menneskers grunnleggende behov knyttet til mat?

Ernæring som en del av helhetlig pleie

Aldersrelaterte forhold som dårlig tannstatus, redusert spyttproduksjon, endret og svekket smaksopplevelse og nedsatt sekre-

sjon av fordøyelsesvesker påvirker både matønsker, matlyst og evnen til å utnytte næringsstoffer. En kombinasjon av somatisk, psykisk og sosial tilnærming trengs for å møte utfordringene. Eldre mottar et bredt spekter av kostbare medisinske tjenester, sykehusbehandling og medikamenter, mens tilpasset ernærings- og væsketerapi ofte blir neglisjert (Mowe m.fl., 2006). Feilernæring er assosiert med økt dødelighet og sykkelighet, men også direkte relatert til dårlig livskvalitet for eldre. I kjølvannet av feilernæring ser vi økte omkostninger knyttet til pleie og behandling av følgesykdommer (Wright, 1999). En gjennomgang av situasjonen i England viste at 70 prosent av tilfeller av underernæring hos eldre ikke ble behandlet (Schenker, 2003). Stortingsmelding nr 25 (2005-2006) "Mestring, muligheter og mening" framhever betydningen av mat og måltid som en viktig del av omsorgstjenestens virksomhet, både på sykehjem og i hjemmetjenesten. For å styrke ernæringsoppfølging i eldreomsorgen i Norge gjennomfører Sosial- og helsedirektoratet høsten 2007 en stor spørreskjemaundersøkelse blant ansatte, hvor både kjøkken, meny, servering, spisemiljø, hjelp til spising, kvalitetssikring og ønsket kompetanseheving blir kartlagt.

Ernæringsrelaterte tiltak er sterkt underprioritert i helsesektoren, og en styrking av ernæringsstiltak vil spare brukerne for lidelser, samtidig som helsesektoren spares for store utgifter. En undersøkelse gjennomført våren 2004 blant leger, sykepleiere og kliniske ernæringsfysiologer i norske sykehus, viste mangelfull kunnskap, mangel på ansvars plassering, samt mangel på rutiner for kartlegging av ernæringsstatus og plan for igangsetting, gjennomføring og oppfølging av ernæringsbehandling (Sosial- og helsedirektoratet, 2007). Andre undersøkelser viser at også innen eldreomsorgen er ernæringsstatus svakt integrert i den medisinske vurderingen av brukerne, noe som spiller seg i mangelfull dokumentasjon, uklare ansvarsforhold og dårlig kvalitetssikring.

Fellernæring

Feilernæring hos eldre handler primært om underernæring. Vekten i forhold til høyden (KMI) er ofte lavere enn det som gir optimal helse. KMI hos eldre skal være høyere (24-29) enn for yngre (18,5-25). Det er altså forbundet med økt helserisiko å

være tynn som gammel. Men viktigere enn selve vekten er vektendring. Vektreduksjon er i seg selv uheldig, fordi ved negativ energibalanse hentes energien fra kroppens fettvev og muskler for å kompensere for manglende tilførsel gjennom maten. Negativ energibalanse gir svimmelhet og nedsatt oppmerksomhet. Avmagring gir økt risiko for bruddskader ved fall og økt risiko for liggesår. Sårhelingen reduseres i katabolsk fase. Ved lite matinntak ser vi også for lave verdier av zink og vitamin C, som ytterligere reduserer nydannelse av vev. Energibalanse og tilstrekkelig tilførsel av vitaminer og mineraler er avgjørende ved behandling av liggesår, men inngår ofte ikke i behandlingen. På tilsvarende måte kan en sette opp argumentasjonsrekker som viser hvordan flere av de dominerende plagene hos eldre har underernæring som en bakenforliggende årsak. Underernæring kan i det fleste tilfellene forebygges og behandles med enkle midler. Men det forutsetter at ernæringsstatus kartlegges og vurderes på samme måte som andre kliniske funn hos brukerne.

Måltidsrytme

Eldre er tjent med flere små måltider for å sikre tilstrekkelig matinntak. Dette kolliderer ofte med avdelingens øvrige rutiner og oppgaver. Retningslinjer for kostholdet i helseinstitusjoner (Statens råd for ernæring og fysisk aktivitet, 1995) angir fire faste måltider ved institusjoner (frokost - lunsj - middag - kvelds), samtidig som det skal gis tilbud om minst ett mellommåltid. Det bør aldri gå mer enn 10 timer mellom dagens siste måltid og frokost neste dag. En enkel servering med havresuppe, kjeks, yoghurt eller banan seint på kvelden eller tidlig om morgenen vil stoppe nedbrytningen av kroppsvæv. I tillegg bør beboerne i størst mulig grad gis mulighet til å få mat etter behov, også utenom faste måltider/mellommåltider. Institusjonen bør la beboerne få innflytelse på menyen og den praktiske tilretteleggingen av mat og måltider, og gjerne åpne for samarbeid med pårørende med grunnlag i en enkel trykksak om mat- og måltidsrutiner.

Vurdering og tiltak

Mangelfulle prosedyrebeskrivelser gir uklarhet om hvordan ernæringsstatus skal kartlegges, hva som utløser tiltak, hvilke tiltak som skal innføres og hvordan tiltak

skal evalueres og følges opp. Ernæring er tilfredsstillende ivarettatt i prosedyreverktoyed PPS (Praktiske prosedyrer i sykepleien, Akribe forlag). Sykepleieprosessen forutsetter at det identifiseres et problem og settes mål. Først da gir det mening å iverksette tiltak, evaluere effekten og evt. bringe inn ressurspersoner for å foreta medisinske vurderinger og prioriteringer. All bruk av medikamenter, seponering og evt. avslutning av livsforlengende behandling dokumenteres og drøftes med pasienten og de pårørende. Når livet tar slutt som følge av langvarig underernæring er det ofte ikke mulig å spore funksjonsområdet ernæring; verken lege- eller sykepleiedokumentasjonen. Hvem tok beslutningen om at det ikke skulle iverksettes spisehjelp, sondeforing eller sentralt venekateter, og når ble det gjort? Den enkleste kartleggingen av ernæringsstatus er å ha en vektkurve som ajourføres en gang hver måned (oftere ved indikasjon på feilernæring). Pleiepersonalets vurderinger bygger ofte på inntrykket av om klærne har blitt slakkere eller om maten blir stående urørt. Dette er viktig kunnskap, men ikke tilstrekkelig for å avdekke underernæring (Rugås and Martinsen, 2003). I egen praksis har jeg sett at utsagn som "Pasienten har spist godt" ikke er knyttet til en vurdering av matinntak opp mot fysiologiske behov. "Spist godt" brukes som uttrykk for at pasienten har spist mer, eller like mye, som hun pleier. Når jeg beregner matinntaket tilsvarende det ofte under halvparten av energibehovet. I praksis betyr det at pasienten er på vei mot sultedøden, om ikke direkte, så i alle fall med økt risiko for nedsatt immunforsvar, svekket almenntilstand og økt risiko for infeksjonssykdommer.

Aktuelle tiltak

Når ledere setter ernæring på dagsorden gir det staben mulighet til å gjøre noe med avviket mellom dagens praksis og ønsket praksis. Kjøkkensjefen eller matleverandøren har ofte større fleksibilitet enn avdelingene tror, og bør sammen med medisinsk ansvarlig og representanter for beboerne inngå i en ansvarsgruppe sammen med pleiepersonalet. Slikt utviklingsarbeid utløser erfaringsmessig en rekke enkle og effektive tiltak. Det skaper et arbeidsklima der det blir legitimt å gjøre justeringer som bryter med innarbeidede rutiner og frigjør gode krefter i personalet. Et levende lys på bordet og personale som sitter ned bidrar til ro rundt måltidet. Et smakspanel blant beboerne kan bidra til å utvikle populære matretter. Vi har flere eksempler på at

styrket ernæringsoppfølging har gitt gode resultater. Tiltak som møteplasser for erfaringsutveksling, idébank om arbeid med mat og måltider i sykehjem, informasjon om ernæring til hjemmeboende eldre på egen nettside og skriftlig ernæringsmateriell for ansatte i omsorgstjenesten er eksempler fra Oslo kommune. Opplæringen i underernæring og Matkortmetoden (Eika and Lurås, 2005) førte til en økt bevisstgjøring i og fokusering på ernæringsarbeid blant ansatte i hjemmetjenestene i Oslo kommune. Resultatet ble at langt flere brukere fikk hjelp til innkjøp, matlaging, matombringning og spising etter at matkortet ble innført. Ernæringsjournalen er også et enkelt hjelpemiddel for å systematisere ernæringsarbeidet. (Ernæringsnett, 2006). Dette er et enkelt A4ark med fire kartleggingspunkter; kroppsmasseindex, vektutvikling og en avkrysningsliste (ja/nei) for problemområder knyttet til spisesituasjonen. Et femte felt gir plass for vurderinger. En slik kartlegging er godt egnet til å bevisstgjøre personalet i forhold til ernærings situasjonen, samtidig som den medisinsk ansvarlige blir ansvarliggjort i forhold til underernæring. Mat på data (Mattilsynet, 2007) er et program som beregner næringsinnholdet i en meny. Ved å legge inn hver matvare som pasienten har spist i løpet av et døgn beregner programmet energi, fiber, vitaminer og mineraler i forhold til personens dagsbehov. Programmet er brukervennlig og godt egnet som grunnlag for justering av kostholdet. Nye matvarer kan legges til og matmengden endres til en oppnår et forsvarlig dagsinntak. Programmet kan lastes ned gratis fra www.mattilsynet.no.

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Fyll ut tabellen og supplér gjerne resultatene med en liste over aktuelle tiltak som dere kan gjøre for å styrke ernæringsarbeidet på din arbeidsplass. Diskuter resultatene på et personalmøte.

	Ja	Delvis	Nei
Jeg opplever at de eldre jeg har ansvar for har et tilfredsstillende kosthold	2	1	0
Det er en matansvarlig sykepleier (eller gruppe) på min arbeidsplass som fungerer godt	2	1	0
Vi har et kompetansehevingsprogram som bidrar til at ansatte har et felles syn på ernæring, kosthold, dokumentasjon og prioriterte tiltak	2	1	0
Hos oss har vi regelmessig (minst hver andre måned) veiling av alle eldre	2	1	0
Jeg tror mange av våre brukere har mye å vinne på bedre ernæringsoppfølging	0	1	2
Jeg opplever at det er ro og trivelig rammer rundt måltidene hos oss	2	1	0
Det er enkel tilgang til egnet vekt for å veie våre brukere	2	1	0
Våre rutiner rundt ernæring er basert på et felles kartleggingsverktøy	2	1	0

Antall poeng: 16-10 = Mye er på plass; 9-6 = Noe bør gjøres; Under 6 = Behov for strakstiltak