CASE STUDY: ONS — a Central Role in Frailty and Dementia Management

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One in six people older than 80 years of age has dementia in the UK, according to the Alzheimer's Society. Overall, 850,000 people in the UK have dementia and 225,000 are diagnosed with the disease each year.[1] People with dementia tend to be at higher risk of malnutrition than the general population:[2] nearly half experience clinically significant weight loss (more than 4% of initial body weight).[3] Many people with dementia are also frail. Indeed, about one in ten people older than 65 years of age are frail, which increases to between a quarter and a half of those older than 85 years of age.[4]

Worsening nutritional status correlates positively with declining cognition and vice versa. Moreover, worsening nutritional status, which can begin in early dementia, can hasten the patient's clinical deterioration and increase the risk of complications, such as infections, pressure sores and falls.[2] Frailty can cause a sudden worsening of confusion in a person with dementia or memory loss.[4] In addition, hospital admissions following falls commonly indicate underlying frailty.[5] This case study illustrates that Fortisip Compact Protein - a high energy, high protein, low volume oral nutritional supplement (ONS) - improved the quality of life and other acute and chronic outcomes in Eileen, a frail 89-year-old woman with dementia.

Presentation

Eileen, who lives with her daughter and son in law, was admitted with general deterioration, multiple recent falls, weakness and acute kidney injury caused by dehydration. Her recent medical history included moderate dementia, multiple fractures following falls and impaired vision. She had undergone a mastectomy to treat breast cancer 20 years before. Eileen was prescribed regular medications for Alzheimer's disease, gastroesophageal reflux disease and dyslipidaemia as well as calcium carbonate plus colecalciferol to improve her bone health.

Before admission, Eileen and her family remarked that she managed small amounts of food, but her appetite was poor and she often forgot to drink. She had lost weight over the last few months and appeared frail, with marked loss of skeletal muscle. However, her family was not certain how much weight Eileen had lost. On admission, Eileen weighed 47kg, with a body mass index (BMI) of 17.2kg/m^2. The nursing team struggled to get Eileen to eat more, despite plenty of assistance and encouragement. Eileen had a Malnutrition Universal Screening Tool ('MUST') score of 3, suggesting that she was at high risk of malnutrition.[6] She received intravenous fluids and underwent physio- and occupational therapy to rebuild her strength and confidence.

Initial dietetic assessment

Eileen was referred to the dietetic department on the day after admission. Eileen's nutritional requirements were estimated to be 1300kcal and 60g protein per day to maintain her body weight. Eileen, however, managed approximately 800kcal and 20g protein each day, and had a relatively low micronutrient intake (table 1).

The dietetic intervention aimed to minimise further weight loss and consisted of a fortified hospital menu, served on a yellow tray, which identified Eileen as needing assistance. She was offered extra high energy snacks – such as glasses of milk, yoghurts and biscuits – once or twice a day. The dietitian encouraged her family to bring in treats when visiting.

Despite this, Eileen was unable to meet her nutritional requirements. Her appetite was poor and Eileen experienced difficulty remembering to drink. As a result, she struggled to finish large volumes. So, Eileen received two 125ml Fortisip Compact Protein drinks each day - each of which delivers 300kcal, 18g protein and approximately 23% of the reference nutrient intakes (RNI) for vitamins and minerals - taken between meals.

Hospital Discharge

A week later, Eileen's dietary intake had not changed. Her weight was stable at 47kg (BMI 17.2kg/m^2). She enjoyed Fortisip Compact Protein, especially the strawberry flavour, and managed her full prescribed volume each day. She felt that the small volume did not affect her appetite or food intake.

Eileen spent 12 days in hospital, primarily to treat her acute kidney injury and to receive rehabilitation to minimise the risk of further falls. Eileen's appetite was still poor on discharge. The dietitian suggested that Eileen and her family increase her dietary protein intake - using, for example, meat, dairy products and beans - to help her retain muscle mass. However, the dietitian and family agreed that Eileen would be unlikely to meet her protein requirements through diet alone. So, Eileen agreed to continue taking two Fortisip Compact Protein drinks each day for 12 weeks, which is in line with prescribing guidance from the Managing Adult Malnutrition in the Community Pathway for frail elderly patients.[7]

Eileen's family had bought powdered shakes before her admission. But Eileen did not like the taste and found the large volume difficult to manage. So, Eileen was discharged with a week's supply of Fortisip Compact Protein and a request for a GP prescription specifying the product for the next three months. Fortisip Compact Protein allowed Eileen to get these drinks herself, rather than relying on her family to prepare them, which provided her with some independence and helped ensure that she consumed the prescribed volume.

Community Follow Up

During a follow-up phone call, three months after discharge, Eileen's daughter said that her mother was doing very well, her dietary intake had improved and she rarely refused meals. Her dietary intake continued to vary, however, and on "bad" days Eileen tended to eat less, which made Fortisip Compact Protein particularly helpful. The ready-to-drink ONS bottles helped her maintain her nutritional intake when she felt fatigued.

Eileen had gained 3kg since returning home and weighed 50kg (BMI 18.3kg/m^2), which was nearing the 'healthy' reference range. Eileen had no further falls or hospital readmissions, and her daughter felt that her mother's quality of life had improved considerably. As adequate oral intake and the goals of nutritional intervention had not been achieved,[7] Eileen agreed to take Fortisip Compact Protein for another three months, after which she would be reviewed again.

Learning points

Loss of skeletal muscle function (sarcopenia) is a hallmark of physical frailty.[4] Dietary protein combined with exercise aids the recovery and maintenance of muscle strength and function in older people.[8,9] ONS can improve hand grip strength and quality of life, and have other functional benefits.[7] Nutrition is, therefore, a modifiable risk factor for frailty and falls.[4,10] Indeed, high energy, high protein ONS that include micronutrients may benefit patients at high risk of falls, including those with physical frailty.[4,10]

Older patients need more dietary protein than younger people to support good health, promote recovery and maintain functionality.[8] Guidelines from the European Society for Clinical Nutrition and Metabolism recommend that older people who are malnourished or at risk of malnutrition because of acute or chronic illness should consume 1.2-1.5 g protein per kg body weight a day. The intake should be even higher intake for people with severe illness or injury.[9]

In general, Eileen should, therefore, receive 56-70g protein per day, which could be difficult to achieve through diet alone. In such cases, a high energy, high protein, low volume ONS with micronutrients, such as Fortisip Compact Protein (the first-line ONS in Frimley Park Hospital), can help improve energy and protein intakes in patients with small appetites or increased nutritional requirements, while providing additional vitamins and minerals.

Dementia patients' increased risk of malnutrition reflects the impact of several factors, including: dementia-related damage to areas of the brain involved in appetite regulation, eating behaviour and olfaction; dysphagia; and agitation and hyperactivity, which can increase energy requirements and make mealtimes difficult.[11] Adequate energy and several nutrients are important for brain health.[11] However, maintaining a healthy body weight and adequate nutrition can be challenging in people with dementia. In this case, the dietitian agreed with Eileen and her family that minimising weight loss was a realistic goal.

Eileen's case illustrates the importance of the appropriate prescription of ONS to help meet the nutritional requirements of patients during acute illness and on hospital discharge. A comprehensive assessment - encompassing factors such as clinical presentation, co-morbidities, age, nutritional requirements, dietary intake and preferences - helps individualise the most appropriate, clinically effective ONS to each patient.

Health professionals generally should consider the value of ONS for, among others, malnourished patients with dementia, frailty and at high risk of falls. Dietitians can help educate other healthcare professionals about individualising ONS for patients at risk of malnutrition. After all, ONS is an important method to improve nutritional status and support positive clinical outcomes for the increasing number of vulnerable patients in the UK.

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Table 1: Typical dietary intake for Eileen during admission

Breakfast	½ portion of plain porridge
Lunch	All of bowl of soup, refused main course, ½ of dessert
Dinner	½ a bowl of soup, refused main course and dessert
Snacks	2 biscuits