

CASE STUDY: ONS in Locally Advanced Lung Cancer

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Despite smoking's declining popularity, lung cancer remains the second most common malignancy in men and women in the UK, with 46,388 cases during 2015. The prognosis is often poor: only 32% of patients in England and Wales survive beyond a year. Just 5% of patients survive beyond 10 years. During 2016, 35,620 people died from lung cancer in the UK and survival has shown little improvement for the last 40 years.¹

Between 50% and 80% of cancer patients develop cachexia, characterised by loss of skeletal muscle mass and, in many cases, adipose tissue.² Loss of muscle mass and function may precede overt cachexia,³ which can prove difficult to manage and accounts for up to 20% of cancer mortality.² In addition, dysphagia, either as a result of the cancer or its treatment, can hinder nutrition.

Dysphagia and cachexia are common in people with lung cancer. One study of 72 people with advanced lung cancer reported that 18.1% experienced dysphagia.⁴ Another study found that 45.6% of 134 patients presented with cachexia on diagnosis of non-small cell lung cancer (NSCLC).⁵ Unfortunately, decreases in skeletal muscle mass and cachexia are associated with poor performance status and shorter survival.^{3,5} This case shows that a combination of enteral tube feeding with Nutrison and the juice-style oral nutritional supplement (ONS) Fortijuce supported Mary, a 65-year-old NSCLC patient, who was unable to meet her nutritional requirements through food alone.

Presentation

Previously, computed tomography and biopsy had shown locally advanced (T3 N3 M0) squamous cell carcinoma of the lung. The tumour pressed on Mary's oesophagus. Mary underwent palliative radiotherapy three weeks before her hospital admission with vomiting, diarrhoea and marked difficulties swallowing.

Mary was admitted during her first cycle of chemotherapy with cisplatin and paclitaxel. Her blood test showed slightly raised C-reactive protein, indicating metabolic stress. Although her creatinine levels were slightly raised, other markers of renal function were within the normal ranges. In addition to chemotherapy, Mary received antiemetics, proton pump inhibitors and steroids.

Nutritional screening

Mary's weight was 74kg on admission, with a body mass index (BMI) of 26.5kg/m². Mary reported that she had lost weight over the past couple of months, but could not say exactly how much. Based on her records, however, Mary had lost about 12% of her body weight. She managed only small amounts of fluid, ice-cream, yoghurt and soup during most of the month before admission. But during the week before admission, she only managed 200ml of oral fluids a day. Screening on admission revealed a Malnutrition Universal Screening Tool ('MUST') score of 3, suggesting that Mary was at high risk of malnutrition.⁶ In addition, the speech and language therapist assessed Mary on her first day of admission and diagnosed oesophageal dysphagia secondary to the lung mass. As a result, Mary was referred to the dietitian.

Initial dietetic assessment and management

At the dietetic assessment the day after admission, Mary reported poor oral intake due to swallowing difficulties, loss of appetite and nausea. Mary had previously received advice about food fortification. However, her dysphagia, poor appetite, taste changes secondary to chemotherapy and the metabolic activity of her malignancy⁷ meant that she struggled to meet her nutritional requirements orally. So, a nasogastric tube (NGT) was inserted the same day, while the ward team encouraged Mary to eat and drink.

The dietitian and Mary agreed that nutritional intervention should aim to prevent further weight loss and subsequent malnutrition. As Mary could be at risk of refeeding syndrome, her blood biochemistry was monitored daily and a vitamin B supplement was prescribed.

Enteral feeding started with 500ml Nutrison at 25 ml/hour over 20 hours with 100ml water flushes before and after feeding. This regimen provided 500kcal, 20g protein and 700ml fluid. The rate was gradually increased over three days to reduce the duration and given overnight to encourage Mary to eat and drink during the day. The dietitian and Mary agreed to try ONS to maximise her oral intake while her appetite was poor. Mary preferred non-milky supplements. So, the dietitian prescribed Fortijuce to be taken when she was able to, in addition to her hospital diet and enteral tube feeding.

This information is intended for healthcare professionals only.

The Nutrison range and Fortijuce are Foods for Special Medical Purposes for the dietary management of disease related malnutrition and must be used under medical supervision.

Mary's appetite and swallowing gradually improved over the next 5 days. Initially, Mary managed some porridge and clear soup. In addition, she drank 2 Fortijuce bottles (200ml) a day, which together provided 600kcal, 15.6g protein and vitamins and minerals. She began to eat a wider variety of foods and increased her intake to 3 Fortijuce bottles a day. On day 5, Mary's oral intake met her nutritional requirements and her NGT was removed.

Community follow-up

Mary was discharged on day 8, under the care of the oncology team and the community Macmillan dietitian. Her BMI had increased to 27.4kg/m². Mary continued to fortify her food. She agreed to continue the ONS as her dysphagia and appetite was not likely to improve sufficiently to meet her requirements after discharge. The dietitian asked the GP to prescribe 2 Fortijuce bottles per day for another month.

The dietitian saw Mary when she returned for chemotherapy. Mary was eating only small amounts at each meal, but her weight remained stable as she was taking her ONS as prescribed. Her dysphagia had improved as the tumour volume had decreased, but was not completely resolved, and she received platinum-based chemotherapy, which is often associated with considerable emesis.⁸ So, Mary agreed to continue the ONS. The dietitian asked the GP to prescribe 2 Fortijuce bottles a day for another three months, after which she would be reviewed.

Learning points

As mentioned above, up to 80% of patients with malignancies develop cachexia,² which underscores the difficulties of meeting the nutritional requirements of people with cancer. In this case, the cancer caused dysphagia. Anticancer treatments can cause taste and smell changes in up to 70% of patients⁹ and some chemotherapies are associated with a high prevalence of emesis.⁸ Moreover, malignancies seem to be metabolically active, which increases resting energy expenditure.⁷

Mary illustrates that ONS can support patients who are unable to meet their nutritional requirements through food alone and can be used alongside supplementary nasogastric feeding. Despite a BMI of 26.5kg/m², ONS were clinically indicated, in line with NICE guidelines,¹¹ to help manage Mary's cancer-related malnutrition in the presence of unintentional weight loss and minimal oral intake. Higher BMI seems to be associated with longer overall survival in patients with lung cancer,^{12,13,14} including following surgery for NSCLC,^{12,14} at least in the first 16 months.¹³

Mary was unable to achieve adequate nutritional intake orally and, therefore, received enteral tube feeding in line with the British Association For Parenteral And Enteral Nutrition (BAPEN) recommendations.¹⁰ However, Mary could still manage to eat and drink small amounts, which was encouraged to enable her to discontinue tube feeding as soon as possible. Without ONS, Mary's poor appetite and dysphagia would probably have meant that she would have continued to struggle to meet her nutritional requirements orally, prolonging the need for nasogastric feeding and extending her hospital admission. If unmanaged, malnutrition can increase the duration of hospital stay (by about 30%)¹⁵ as well as make readmissions more likely,¹⁶ reflecting the increased risk of complications, exacerbations of previously stable conditions or by predisposing to new acute illnesses.¹⁷

ONS improve nutritional status, decrease length of stay and reduce the risk of complications, infections, hospital readmissions, GP visits and improve quality of life.^{11,18,19} Indeed, the Lung Cancer Nutritional Care Pathway suggests that patients may require nutritional support, including the early use of ONS, at diagnosis, during treatment and in palliative settings.¹⁹ Being able to offer a variety of flavours can help when patients develop taste changes or mucositis. Like Mary, many cancer patients who experience taste changes and nausea often prefer tangy, fruity or juicy flavours.

Good nutritional status helps cancer patients be fit for treatment and, in turn, achieve better outcomes.^{11,20} Nutritional support should not, however, stop after hospital discharge, when the patient is particularly vulnerable.¹⁷ The Lung Cancer Nutritional Care Pathway suggests considering the prescription of 2 ONS a day (range 1-3) for patients at medium risk of malnutrition in accordance with local guidelines. The Pathway also recommends that high-risk patients who have insufficient food intake (less than 50% of 3 meals a day) should receive 2 ONS a day (range 1-3) alongside oral intake. The prescription should last initially for 12 weeks depending on the patient's clinical condition and nutritional needs.²⁰

Mary showed drastically compromised oral intake and high risk of malnutrition due to the lung cancer and its treatment. Fortijuce helped Mary meet her nutritional requirements during and after her hospital admission. As her case illustrates, appropriate nutritional management in hospital and in the community is essential to promote positive clinical outcomes in cancer patients and requires continuity of care to minimise ongoing nutritional challenges in the community.

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