

# CASE STUDY: Nutritional Management in Ovarian Cancer

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Ovarian cancer is the sixth most common malignancy among women in the UK, with 7270 new cases during 2015. About 46% and 35% of women survive at least 5 and 10 years respectively. Nevertheless, 4227 women in the UK died from ovarian cancer during 2016.<sup>1</sup>

Pelvic or abdominal pain, persistent bloating, early satiety and loss of appetite are hallmark symptoms of ovarian cancer.<sup>2</sup> Many women with ovarian cancer experience these symptoms for several weeks or months before diagnosis. As a result, women with ovarian cancer may be nutritionally compromised even before they embark on treatment.

In general, cachexia affects 50-80% of patients with malignancies and accounts for up to 20% of cancer mortality.<sup>3</sup> Reduced skeletal muscle mass, often accompanied with depletion of adipose tissue, characterises cancer cachexia, which can prove difficult to manage.<sup>3,4</sup> Unfortunately, loss of skeletal muscle and decreases in weight predict overall survival in women with ovarian cancer.<sup>5,7</sup> Moreover, muscle loss – reflecting cachexia – is associated with the amount of residual tumour after surgery and unfavourable performance status.<sup>7</sup>

Therefore, intensive nutrition counselling, supported by oral nutritional supplements (ONS), is an important element in care. This case shows that Fortisip Compact and Scandishake Mix minimised the deterioration of body composition in Ellen, a 51-year-old married woman with ovarian cancer. This approach allowed Ellen to complete her planned cancer treatment, which aimed to prolong her overall survival and enhance her quality of life.

## Presentation

Ellen was referred under the 2-week wait rule with symptoms that included pelvic discomfort, reduced appetite, weight loss, abdominal distension, reflux and shortness of breath that progressively worsened. Previously fit and well, Ellen was an active walker and managed a coffee shop full time. On diagnosis, however, her performance status was 2: in other words,

she was ambulatory, capable of all self-care and mobilising more than 50% of waking hours, but she was unable to work.

A computed tomography (CT) scan showed a large pelvic mass, which biopsy confirmed as ovarian cancer. The CT also showed gross ascites and she subsequently had 8.5 litres of ascitic fluid drained. The cancer team agreed with Ellen to use neoadjuvant chemotherapy with paclitaxel and carboplatin to alleviate her symptoms and reduce the tumour size to maximise removal with surgery. Post-operative chemotherapy with paclitaxel and carboplatin aimed to mop up any microscopic malignant cells. As part of her overall plan, nutritional support aimed to maintain and support her muscle mass and provide adequate energy, while managing and minimising the nutritional impact of her symptoms.

## First dietetic assessment

Ellen saw the dietitian at her first chemotherapy session. Her symptoms left her very debilitated and she came to her first chemotherapy session in a wheelchair. She showed marked abdominal distension due to residual ascites and the large, bulky tumour. She experienced pain on eating, early satiety and had completely stopped solid foods. Ellen found chewing and swallowing to be a huge effort and she had an immediate sense of satiety. Her diet was predominately soups, clear fluids and milk.

To meet her nutritional requirements (table 1), Ellen required high energy, high protein, low volume ONS. She received 6 bottles (125ml) of Fortisip Compact, each of which provides 300kcal, 12g of protein (daily total 1800kcal and 72g protein) and a nutritionally complete range of vitamins and minerals to meet her nutritional requirements. She tolerated Fortisip Compact extremely well and continued other fortified fluids. While the ONS met her nutritional requirements, the dietitian encouraged Ellen to add small amounts of semi-solid foods (such as yoghurt and custard) to regain confidence that her diet would not exacerbate her symptoms. She was also encouraged to slowly

This information is intended for healthcare professionals only.

Fortisip Compact is a Food for Special Medical Purposes for the dietary management of disease related malnutrition and must be used under medical supervision.

Scandishake Mix is a Food for Special Medical Purposes for the dietary management of disease related malnutrition, malabsorption states or other conditions requiring fortification with a fat/carbohydrate supplement and must be used under medical supervision.

increase physical activity, beginning with gentle walks and reducing her use of the wheelchair.

### Follow up

The symptoms that affected Ellen's nutrition improved with each chemotherapy cycle. The amount of ascitic fluid and the corresponding early satiety showed particular improvements. Ellen increased her normal diet in defined 300kcal portions of meals and snacks. In parallel, ONS was titrated down, 1 bottle at a time.

By the third chemotherapy cycle, Ellen was managing a full diet supplemented by 1 Scandishake Mix - a high energy ONS based on skimmed milk powder, carbohydrate and fat - to address a 600kcal deficit. The format appealed as chemotherapy had produced taste changes. Ellen added fresh fruits to make fortified milkshakes and smoothies. Her husband developed and made several Scandishake-based mocktails, which meant that he felt he was supporting and nourishing Ellen in a practical way.

A CT scan after the third chemotherapy cycle showed a good response, allowing total abdominal hysterectomy, bilateral salpingo-oophorectomy, total omentectomy and excision of bulky paracaval nodes. She followed an enhanced recovery plan, including early oral intake and ONS during her surgical admission. After surgery, she completed a further 3 cycles of chemotherapy with continued dietetic counselling and ONS, which ceased once the course ended.

Ellen remains fit and well. A patient satisfaction survey identified the factors that she found most useful to manage her nutritional symptoms:

- Having practical ways to manage symptoms; for example, food and drink suggestions and recipe ideas
- The dietitian's regular support and encouragement
- Having a clear explanation about the symptoms affecting her nutrition and understanding the proactive management plans
- Using a range of ONS alongside dietary intake.

### Learning points

Monitoring BMI is difficult when a patient has ascites or pleural effusions: weight changes often result from accumulated fluid rather than body composition.

Assuming that her weight after the ascites drain was probably closest to her body composition, Ellen lost a maximum of 3.4 kg - equivalent to 5% body weight. In other words, her body weight remained relatively stable despite her symptoms' nutritional impact and receiving platinum-based chemotherapy, which is often associated with nausea and vomiting.<sup>8</sup>

Maintaining muscle mass and body weight is associated with improved overall survival in women with ovarian

cancer. For example, a study of 123 women with ovarian cancer who received neoadjuvant chemotherapy, reported that median overall survival was 916 days in those patients who lost skeletal muscle. In contrast, median overall survival was 1431 days in those women who maintained or gained skeletal muscle.<sup>5</sup>

A retrospective review of 792 women with advanced ovarian cancer who received paclitaxel plus either cisplatin or carboplatin found that among patients that showed more than a 5% increase in body weight, median overall survival was 68.2 months. Median overall survival declined to 61.1 months in those who showed a 0-5% increase and 49.3 in those who showed a 0-5% decrease. Median overall survival was 48.0 months in those whose weight decreased by more than 5%. Overall, each 5% reduction in weight was associated with a 7% increased risk of death, after allowing for other risk factors.<sup>6</sup>

As mentioned above, up to 80% of patients with malignancies develop cachexia,<sup>3</sup> which underscores the difficulties of meeting the nutritional requirements of people with cancer. Several factors seem to contribute to the changing nutritional requirements. As Ellen's experience illustrates, for example, the symptoms of some cancers can make eating a normal diet difficult and promote early satiety. Anticancer treatments can cause taste and smell changes in up to 70% of patients<sup>9</sup> and some chemotherapies commonly cause nausea and vomiting.<sup>8</sup> The patient's genetic profile also seems to influence the risk of cachexia.<sup>4</sup> Moreover, activation of immune and neuroendocrine responses that are similar to those in sepsis, or following trauma, can lead to malignancies becoming metabolically active, which in turn leads to catabolism.<sup>4</sup>

Therefore, providing a nutritionally complete intake of both macro- and micronutrients is a cornerstone of cancer care. As part of this, ONS can be used as a supplement or, when needed, the sole source of nutrition. Low volume ONS are particularly useful for people experiencing certain symptoms or side effects (such as early satiety, nausea and vomiting) and those with elevated requirements due to losses (for example, diarrhoea and vomiting from chemotherapy) or the metabolically active cancer. Being able to offer a variety of flavours and consistencies can help when patients develop taste changes or mucositis.

Cancer cachexia is a complex, multifactorial syndrome that can markedly compromise a patient's quality of life, increase the likelihood that the person will respond poorly to treatment and is associated with decreased survival.<sup>3</sup> As this case shows, intensive nutritional counselling, alongside ONS, minimised ongoing deterioration in nutritional status and allowed Ellen to

complete her planned oncological treatment, with the aim of improving her overall survival and enhancing her quality of life.

## References

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**Table 1: Anthropometry and nutritional requirements at referral**

Anthropometry		
Height		1.59m
Weight after ascitic drain		64.9kg
BMI		25.6kg/m <sup>2</sup>
Nutritional requirements (daily)		
Energy	ESPEN <sup>10</sup>	1947kcal
	Henry <sup>11</sup>	1909kcal
Protein	ESPEN <sup>10</sup>	78g
	Elia <sup>12</sup>	81g