Malnutrition in liver disease or Nutrition

Most people associate the term malnutrition as a deficiency in nutrition and perhaps do not appreciate that malnutrition can also be caused by excesses in nutritional status. Relatively recent 2018 Clinical Practice Guidelines (CPG) from the European Association for the Study of the Liver (EASL) acknowledged that malnutrition referred to both surplus and deficiency in nutrition, but stated that for the purpose of their CPG, malnutrition would be referred to as undernutrition. Certainly, within the field of hepatology and liver disease, both excess and deficiencies in nutritional status are often witnessed. For example, over the last 40 years, increasing numbers of patients have been diagnosed with cirrhosis due to non-alcoholic steatohepatitis (NASH), as a direct consequence of obesity. However, in decompensated alcohol related liver disease, patients often present cachexic and therefore malnourished.

It is now well known within the liver fraternity that the progression of malnutrition increases in line with liver failure (EASL 2018). A consequence of undernutrition is gluconeogenesis, where the liver switches from using glucose as the main fuel for the body, to fatty and amino acids. This increases the breakdown of fat and protein from the body and can be described as the body cannibalising itself. This process is aggravated by reduced dietary intake because of chronic disease as well as being compounded by imposed fasting for tests and investigation purposes. Furthermore, salt restriction is sometimes required, which for some patients, can make food unpalatable and therefore difficult to eat. All of this leads to loss of body fat and muscle. Muscle mass loss is termed sarcopenia.

EASL (2018) recommends that cirrhotic patients should have an increase in dietary protein and carbohydrate and where needed, additional supplementation of branch chain amino acids. Some patients may require 2 grams (g) of protein per kilogram (kg) of dry body weight, as compared to 1g/kg for the general population. Late evening nutritional supplementation is especially important to ensure the body copes with natural overnight fasts whilst sleeping, without experiencing further losses of fat and muscle. However, the significance of this was previously not recognised. Formerly, it was felt that protein restriction in all cirrhotic patients was a necessity to prevent the development of hepatic encephalopathy. Hepatic encephalopathy is a variety of neuropsychiatric disturbances ranging from slow mentation to

altered levels of consciousness. It is postulated that hepatic encephalopathy is caused by a build-up of unmetabolised ammonia, the natural by-product of the breakdown of protein by the liver. Therefore, as liver disease progresses, unmetabolised ammonia can accumulate, resulting in hepatic encephalopathy.

In the 21st century, with research into liver disease and from this, improved knowledge, protein restriction seems not only archaic but barbaric; as the realisation dawned that we were starving our cirrhotic patients of much needed protein, vitamins and energy. This simple fact highlights the great importance of evidence based medicine and nursing. A further consideration is that the standard hospital menu caters for general patients and is therefore insufficient to meet the nutritional requirements of many patients with chronic liver disease. Therefore, additional snacks and milky drinks are simple strategies which can be employed by nursing staff to meet the high calorie and protein requirements of vulnerable liver patients. However, administering high carbohydrate and protein snacks in the late evening or during the night can be difficult. Most NHS hospitals have outsourced the catering and any stocks of biscuits, sandwiches and bread are accounted for, and locked away, making it challenging to implement late night, high carbohydrate or protein snacks. In addition, the ward housekeepers have often finished their shift and it is up to nursing staff to ensure patients are given drinks and snacks late at night. As nurses can be very busy, these important food and drink rounds can sometimes be overlooked. To circumvent this issue, in some NHS Trusts, high carbohydrate snacks and drinks are prescribed on the medication charts to ensure that patients do receive them.

Poor nutrition is common in patients with chronic liver disease and is associated with poorer outcomes. Nutritional intervention improves nitrogen balance, serum protein concentration, liver function, muscle measurements, reduces complications and improves mortality. All liver patients admitted to hospital should have a nutritional screening using the malnourished, at risk of malnutrition, or obese MUST tool within 24 hours of admission and weekly thereafter. Referral to the dietician should be made for all “high risk” MUST patients, all decompensated liver disease patients and for patients being considered total nutritional supplements/enteral feeding. If patients are encephalopathic, branch chain amino acids supplementation should be considered and in those patients who are unable to eat, nasogastric feeding should be considered.