

Michael Pittilo Essay Prize 2016

Food the forgotten medicine: how can clinicians and patients maximise its potential benefits?

In 1974, Charles Butterworth discovered the 'skeleton in the Hospital closet'¹. He found that the nutritional status of patients worsened over the length of their hospital stay. This iatrogenic malnutrition, he said, "undoubtedly contributes to increased mortality and morbidity." Indeed, any degree of malnutrition is associated with hospitalisation, with up to 40% of adults admitted to hospital being malnourished to some degree². Putting the two together, we have a population of ill people who are malnourished and requiring hospital care, being treated in an environment that in recent history did not adequately support nutrition. Nutritional status has long been a secondary consideration in hospital settings, with the focus being on direct treatment of disease. However, recent evidence is changing the hospital approach to nutrition for the improvement of patient outcomes.

In clinical settings, medicines can be applied for three different purposes: to prevent illness, as a supportive treatment, and as a curative agent. Hippocrates said, "Let food be thy medicine and medicine be thy food." This states his belief that food has a purpose within all three potential applications as a medicine. Do clinicians' today use food as medicine, and if so, in what capacity?

It is well known that nutritional deficiencies cause disease. For example, acute micronutrient deficiency of vitamin B1 (thiamine) causes Beriberi, which can chronically escalate to Wernicke-Korsakoff syndrome; deficiency of vitamin B3 (niacin) directly causes Pellagra, whose symptoms include dermatitis, diarrhoea and dementia; deficiencies of vitamin K cause problems with clotting; scurvy, of naval fame, is caused by vitamin C deficiency; vitamin D deficiency causes Rickets in the young and increases bone density loss in the elderly. Thus, adequate nutrition is essential for disease prevention. Clinicians do prescribe micronutrient supplements when there is suspicion of disease caused directly by a deficiency.

Additionally, some medications cause the body to either not absorb micronutrients properly, increase their need for them, or excrete them more quickly than normal. For example, chemotherapy induces a loss of serum calcium, which results in muscle spasms, pain, and cardiac arrhythmias. Diuretic medications increase potassium and magnesium loss, which can cause constipation, cramps, respiration difficulties and changes to the electrical conductivity of the heart. Supplements are therefore prescribed as a prophylactic to ensure the patient undergoing treatment does not suffer these consequences.

In a direct cause-consequence situation, clinicians are very good at supporting patients with supplements. However, supplements are different to food and are applied as a short term fix. For long-term problems, food and eating well should be considered for maintenance of adequate nutrition.

I had the opportunity to help a patient on the ward who suffered from Parkinson's disease. His swallow was insufficient and had caused food to fall into his lungs resulting in pneumonia. In hospital, to help with this, his drinks were thickened and his meals were mushed. Other than a physical instability and shaky hands, he had all of his faculties, a very sharp wit and a cheeky personality. He

made his dislike of the meals and thickened drinks very well known. I sat with him and helped him with his lunch: mashed potato, mushy peas and white fish in a white sauce all mushed-up. To me, it seemed as good a meal as he could have in the situation. For him, he had eaten the same lunch for two weeks since being admitted for his infection. He did not want to eat it. He was not allowed another choice, as the pieces of chicken breast or pie were too risky with his swallow and should it go into his lungs, it would make his pneumonia worse. He ate three mouthfuls and shook his head, refusing any more. It was his choice not to eat that meal as he had become bored with it. For his wife, the burden fell to her to provide palatable food each visiting time that he wanted to eat. His pneumonia improved and he was discharged home. Despite dietetic intervention and everyone's best efforts, over the course of his three week admission, he lost 4kg in weight.

This case is a good example to show the complexities of nutrition. Food has often been a secondary consideration in a hospital setting because it is a complex multifactorial issue with many intrinsic and extrinsic influences. Body composition, physiology, activity levels, morbidity, comorbidity, mental capacity, feeding support, food availability and patient cooperation all influence what a person successfully eats, absorbs and utilises from their diet. Insufficiency of nutrition can be caused by any one of those factors going wrong.

Illness brings a triple threat to nutrition status: it increases a person's energy and micronutrient requirements, it makes it harder for the body to absorb nutrition from food, but it also makes the act of eating more difficult, by reducing appetite, and increasing patient's physical difficulty in feeding, chewing or swallowing. This means that patients enter a catabolic state and become more malnourished throughout their hospital stay as a direct result of their illness.

The problem is further compounded by the day-to-day regime of the hospital, which is a strong influence on how much a patient gets to eat. On the catering level, there is an amount spent per patient per day for meals, and choice is maximised as much as possible within budget confines. However, inappropriate meals are still served, for example where there is difficulty chewing, or holding cutlery, and this puts pressure on ward staff to ensure whatever is served is consumed. Furthermore, there are just not enough staff to sit at each bedside and feed each patient each mouthful of their meals. If patients do not get support to eat, their food will go cold and uneaten. Additionally, when a patient is not in their ward bed at meal times, they do not get fed. My own mother missed breakfast, lunch and dinner due to being in surgery, and on her hungry return to the ward the only available food was two slices of toast.

From a medical perspective, doctors cannot perform certain procedures without the patient's stomach being empty, and so if a patient is to have a procedure, they are often made to be 'nil by mouth'. If that procedure then does not happen, the patient may get to eat their evening meal before being rescheduled for the following day and made 'nil by mouth' again. Procedural list organisation is on a priority basis, with emergencies having to be seen in place of elective (read 'non-urgent') cases, meaning unpredictable changes are made to the lists at the last minute. The result is nutritional depletion in the patient.

Most strikingly of all of the influences on hospital nutrition is the fact that the total energy provided in all hospital meals per day averages at 1500Kcal: 500 calories too few for average women and 1000 too few for average men. It is an unfortunately enforced diet where the sickest who require more are disproportionately affected.

The net result does not just impact a patient's waistline. It has a multifactorial effect on the patient. decreases muscle mass, visceral proteins, impairs immune response and wound healing and increases the chance of multiple organ failures. Furthermore, it changes the way that medications are absorbed, activated and used within the body. If dignified care is making all efforts to support the patient, then where food is concerned, patient dignity is considered, but not necessarily enacted.

However, thanks to recent research and application of evidence based practice, the nutrition tide is turning. There are NICE guidelines for nutrition support in the hospital and community settings, considering body mass index, weight loss, capacity to eat, absorptive capacity and catabolism³. We are moving away from using the term 'healthy eating', which refers to an everyday diet beneficial for most people, to 'eating for health', to better describe a therapeutic diet for individuals⁴. Dieticians are employed to assess and monitor the nutritional status of all inpatients and communicate with their clinical team if there have been any issues so that problems can be addressed. Elderly patients undergoing surgery are now admitted prior to their scheduled surgery for preoperative feeding because it decreases postoperative mortality⁵. Anecdotally, I have seen bananas be prescribed for instead of potassium replacement medications. All of these interventions focus more on individual cases and involves more healthcare professionals working directly with service users. This needs rigorous procedure and communication. Importance is being on the maintenance and support of nutrition to better patient outcomes.

Due to the complexities of nutritional status, in the past it has not been considered the primary objective of disease treatment. However, recent evidence both enables and encourages clinicians to use foods as a prophylaxis against disease, as a supportive agent to maximise patient outcomes and as a curative in situations where a nutritional deficiency is caused by inadequate intake, absorption, or over excretion. Publically, 'eating for health' should be promoted to encourage people to maintain their nutritional status, to maximise their physical resistance to illness and avoid hospitalisation. Within the hospital setting, patient needs should be monitored and supported with greater flexibility. These interventions all require professional and service user responsibility, agreement and cooperation. Nutritional support is always available when needed.

In the future, how we food as a medicine will depend on research and available evidence. In any situation, healthcare workers and service users should always aim to work together for the best possible patient outcomes.

References:

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