

Nutritional support in the ICU

I.B. Nyulasi, Alfred Hospital, Commercial Rd, Melbourne, VIC 3004, Australia,.

Major injury, sepsis and multiorgan failure result in critical illness that is often a life threatening. Prior to the development of intensive care units survival of the fittest was very much the norm. Modern medicine has altered the course of the disease process and blunted the extreme response to injury. Nutrition support along with other multi modal therapy has greatly improved survival of patients with such illness in Australia.

The metabolic response to injury is characterised by loss of homeostasis with a systematic inflammatory response such as the release of cytokines mediated by neuroendocrine hormones. During this acute phase of injury the body's response is rapid catabolism. Amino acids are mobilised particularly from skeletal muscle to provide rapidly both energy and substrates for the immune system. However, the body has only a finite reserve of energy and amino acids before it depletes its stores and is unable to respond to further on going metabolic demands. How long can the patient hold out? This partly depends on the patient's preinjury nutritional status and skeletal muscle store. However, it has been clearly demonstrated that lack of nutrition support during critical illness will lead to increased mortality and significantly both short and long term morbidity. Lack of attention to nutritional needs has led to patients' leaving ICU with a 20,000 Kcal energy deficit and 5-8 kg lean body mass loss. Though they might have survived their illness their nutritional deficit has led prolonged debility and weakness requiring months of rehabilitation.

The literature on ICU nutrition has often been confusing and contradictory. This is partly due to the heterogeneous nature of the ICU patient populations with very different diseases, age and co-morbidities.

Modern ICU's have now integrated the nutrition support as part of routine care and increasingly using technology such as measuring resting energy expenditure to target energy intake. It is now considered best practice to commence nutrition support within 24 hours of admission to ICU, using enteral nutrition in the first instance and opting for parenteral feed when gut function is not adequate. Careful monitoring of nutrient administration against targets has allowed for the reduction in patient's energy deficits. Quality frameworks are being developed and tested to ensure for optimal patient outcomes following critical illness.