



Optimal Nutrition in Burn Injury Patients and their Functional Outcomes

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DESCRIPTION

Burn injuries are among the most severe forms of trauma that can affect the human body. They cause extensive damage to the skin and underlying tissues, resulting in fluid loss, infection, inflammation, and impaired wound healing. Moreover, burn injuries trigger a profound metabolic response that increases the energy and protein requirements of the body, while also reducing the appetite and absorption of nutrients. Therefore, nutritional therapy is a vital component of the comprehensive care of burn patients, as it can help to prevent or minimize the adverse effects of malnutrition, such as muscle wasting, immune dysfunction, organ failure, and delayed recovery.

The goals of nutritional therapy in post burn injury cases are to:

- Provide adequate energy and protein to meet the increased metabolic demands and support tissue repair and regeneration.
- Prevent or correct micronutrient deficiencies that may impair wound healing and immune function.
- Maintain fluid and electrolyte balance and prevent dehydration and edema.
- Preserve lean body mass and prevent excessive weight loss or gain.
- Enhance the quality of life and functional outcomes of burn patients.

To achieve these goals, nutritional therapy should be individualized, monitored, and adjusted according to the patient's age, weight, burn size and depth, clinical condition, and response to treatment. Nutritional therapy should also be initiated as soon as possible after the burn injury, preferably within 12 hours, as early intervention has been shown to reduce the severity and duration of the hyper-metabolic response and improve survival rates. The preferred route of nutritional therapy in post burn injury cases is Enteral Nutrition (EN), which involves delivering nutrients directly into the gastrointestinal tract *via* a nasogastric, gastric, or intestinal tube. EN has several advantages over Parenteral Nutrition (PN), which involves delivering nutrients intravenously. EN is more physiological, cost-effective, safe, and convenient than PN. EN also preserves

the gut integrity and function, stimulates the release of hormones that modulate metabolism and appetite, and reduces the risk of infection and sepsis.

In addition to energy and protein, burn patients also require adequate amounts of fluids, electrolytes, vitamins, minerals, antioxidants, and other micronutrients that are involved in wound healing and immune function. Fluid resuscitation is crucial in the initial phase of burn management to restore blood volume and prevent hypovolemic shock. Fluid requirements depend on the patient's weight, burn size, urine output, and other factors. Fluid intake should be adjusted according to clinical signs such as blood pressure, heart rate, urine output, and serum electrolyte levels. Electrolyte imbalances are common in burn patients due to fluid shifts, renal losses, wound drainage, and metabolic alterations.

The most important electrolytes to monitor and supplement are sodium, potassium, magnesium, calcium, and phosphorus. Sodium and potassium are essential for maintaining fluid balance and cellular function. Magnesium and calcium are important for muscle contraction, nerve transmission, and bone health. Phosphorus is vital for energy metabolism, cell membrane structure, and bone health. Vitamins and minerals are also essential for burn patients, as they act as cofactors or antioxidants in various biochemical reactions that support wound healing and immune function. Iron is involved in oxygen transport, hemoglobin synthesis, and immune response.

CONCLUSION

Nutritional therapy is a vital component of the comprehensive care of burn patients, as it can help to prevent or minimize the adverse effects of malnutrition, such as muscle wasting, immune dysfunction, organ failure, and delayed recovery. Nutritional therapy should be individualized, monitored, and adjusted according to the patient's age, weight, burn size and depth, clinical condition, and response to treatment. Nutritional therapy should also be initiated as soon as possible after the burn injury, preferably within 12 hours, as early intervention has been shown to reduce the severity and duration of the hyper-metabolic response and improve survival rates.

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