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Effect of glutamine-enriched total parenteral nutrition on septic rats.

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Abstract

1. The effect of total parenteral nutrition with or without glutamine enrichment was studied in septic rats after 4 days of treatment. 2. Septic rats treated with glutamine-enriched total parenteral nutrition survived sepsis significantly better than other TPN-treated septic rats: the cumulative percentage of deaths over 4 days in septic rats treated with glutamine-enriched total parenteral nutrition was 25% compared with 55% in septic rats given total parenteral nutrition without glutamine and 70% in septic rats given glucose. 3. Glutamine-enriched total parenteral nutrition resulted in improved nitrogen balance in septic rats: the cumulative nitrogen balance over the 4 days of treatment was the least negative as compared with other groups of septic rats. 4. The rate of loss of intracellular glutamine in skeletal muscle was markedly decreased (P less than 0.001) in response to glutamine-enriched total parenteral nutrition in septic rats. 5. The rate of protein synthesis was increased (21.2%) and the rate of protein degradation was decreased (35.5%) in response to glutamine-enriched total parenteral nutrition in septic rats. 6. It is concluded that the administration of glutamine-enriched total parenteral nutrition is beneficial to septic rats and possibly to septic patients.