

Personalization of infusion therapy: current status and future perspectives

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ABSTRACT. Infusion therapy in critical conditions, while technically simple, requires a complex approach to select the optimal type and volume of fluid. Personalized therapy is considered a new strategy for resuscitating seriously ill patients, especially those with sepsis and shock. This strategy involves the individual selection of volume, composition, and infusion rate of fluids based on the patient's clinical status.

It is important to differentiate between fluid replacement and volume replacement, as different indications require different strategies. Incorrect fluid selection can harm half of the patients, and dynamic indicators must be used to assess responsiveness. The integration of artificial intelligence for analyzing electrocardiograms has potential in monitoring cardiac disorders, although there is currently no evidence indicating the benefit of colloid solutions over crystalloids in reducing mortality.

Personalized therapy should rely on the concept of “fluid management”, which includes 4 Ds (drug, dose, duration, de-escalation) and 4 ROSE components (resuscitation, optimization, stabilization, evacuation). These approaches can help reduce morbidity and improve treatment outcomes.

Future studies should assess infusion therapy's effectiveness and safety in diverse patient groups, considering individual factors and clinical context.

KEY WORDS: fluid resuscitation, personalized therapy, drug, dose, duration, resuscitation, optimization, stabilization.