

ABSTRACT

Keywords

Burn shock; fluid therapy; arterial pulse contour analysis; dynamic preload parameters; hourly urine output.

Introduction:

Our hypothesis is based on the assumption that the volume therapy in the acute phase of burn shock corrected by a combination of dynamic preload parameters and hourly diuresis is reduced compared to fluid therapy which is corrected only by hourly diuresis. The dynamic preload parameters seem to be the most reliable predictors of response to fluid challenge.

Materials and Methods:

A group of 21 burned patients meeting preliminary criteria (age range 18 – 75 years with 2nd – 3rd – degree burns and TBSA \geq 10 – 75 %) was randomized during 2009 – 2011 as follows. Hemodynamic monitoring through lithium dilution cardiac output was used in 10 randomized patients (LiDCO group) while those without LiDCO monitoring were defined as a control group. The modified Brooke formula as a starting resuscitative formula, balanced crystalloids as initial solutions, urine output of 0.5 ml/kg/h as a crucial value of adequate intravascular filling were used in both groups. Additionally, the volume and vasopressor/inotropic supports were based on dynamic preload parameters in the LiDCO group in the case of circulatory instability. Statistical analysis was done using t-tests.

Results and Conclusions

Within the first 24 hours post burn, a significantly lower consumption of crystalloids was registered in the LiDCO group ($p=0.05$). The fluid balance under the LiDCO control in combination with hourly diuresis contributed to reducing the cumulative fluid balance approximately by 10% compared to fluid management based on standard monitoring parameters.