A PRIMARY STUDY ON PROPER FLUID RESUSCITATION VOLUME IN AN CANINE MODEL WITH BURN-BLAST COMBINED INJURY (P155)

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Background: Proper fluid resuscitation is critical to the survival of the major burn patients. As a fluid resuscitation formula, Parkland formula has been widely used for the resuscitation of the major burn patients. Burn-blast combined injury which can be seen in both peacetime and wartime also needs proper resuscitation. It is not clear the Parkland formula could also be used for the resuscitation of it. In this study we used different fluid volume to resuscitate a canine model with burn-blast combined injury to figure out if the Parkland formula is useful for this animal model.

Method twenty four healthy male beagle dogs were subjected to a burn-blast combined injury (35% total body surface area full thickness burn combined with middle severity blast injury) and were randomly assigned into 3 groups: Parkland formula group (P), Decreased volume group (D) and Increased volume group (I). Fluid volume for group P was calculated with the Parkland formula, while group D and I got decreased or increased by 20% respectively. Urinary output (UOP), Cardiac output (CO), Intra thoracic Blood Volume (ITBV), Extravascular Lung Water Index(ELWI), Oxygen Delivery (DO2) and Oxygen Consumption (VO2) were determined pre and 4h, 8h, 24h, 48h post injury in each group. Result UOP in I group was significantly higher than that in group P and D at 4h, 8h and 24h post injury respectively [(0.77±0.17) vs. (0.41±0.13), (0.30±0.13)mL/kg/h; (0.81±0.15) vs. (0.47±0.14), (0.41±0.16) mL/kg/h; (0.88±0.05) vs. (0.59±0.05), (0.53±0.06)] (P<0.05). Conclusion For the canine model with burn-blast combined injury, higher fluid volume (20%) than Parkland formula may get better fluid resuscitation in remaining the circulation volume, alleviating the cardiac output declining, maintaining adequate organ perfusion, and promoting the tissue oxygenation ability.