

Original Research Article

Lactate clearance: its relationship with the success of non-operative management in patient with blunt abdominal trauma

Reno Rudiman*, Nova Saragih, Andriana Purnama

Department of Surgery, Division of Digestive Surgery, Hasan Sadikin Hospital/Faculty of Medicine, Padjadjaran University, Bandung, West Java Indonesia

Received: 01 March 2017

Accepted: 29 March 2017

***Correspondence:**

Dr. Reno Rudiman,

E-mail: rudiman@unpad.ac.id

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Occult ongoing bleeding has become the second highest cause of death in blunt abdominal trauma. Undetected abdominal injury has caused morbidity and mortality in patients at the early phases of trauma. Non-operative Management (NOM) in solid organ trauma is safe and effective, and this strategy has become widely used. Lactate clearance (LC) has important clinical benefits in patients with acute trauma that is superior to initial lactate examination.

Methods: This study was a prospective cohort study of patients with history of hemorrhagic shock caused by blunt abdominal trauma that came to emergency room of Hasan Sadikin Hospital Bandung from August 2015 to July 2016. The tests were including initial blood lactate, 2 hours, and 4 hours post-resuscitation and then calculation of LC. Analysis using SPSS with chi square for the significance of relationships and Spearman correlation to determine the strength of the relationship between variables. Comparison test between LC2 and LC4 were calculated using Mann-Whitney tests.

Results: During one year period, from August 2015 to July 2016, there were 34 patients. Age was in the range of 15-65 years, with a range of 15-25 years were 19 (55.8%), 25-50 years were 11 (32.4%), and >50 years as many as four (11.8%). By sex, there were 28 (82.4%) male gender and 6 (17.6%) women. Based on the type of trauma, there were 11 (32.4%) single trauma patients and 23 (67.6%) multiple trauma patients. Based on the results of statistical analysis with chi square, there was a significant correlation between lactate clearance 2 hours (LC2) and lactate clearance 4 hours (LC4) with the success of NOM ($p < 0.001$) with the Odds Ratio (OR) are 3.750 and 6.500 respectively. Based on non-parametric test (Mann Whitney) showed that there were no significant differences between the LC2 and LC4 in determining the successful of NOM ($p > 0.05$).

Conclusions: There was a significant relationship between lactate clearance 2 hours (LC2) and lactate clearance 4 hours (LC4) in determining the success of non-operative management (NOM) in patients with history of hemorrhagic shock caused by blunt abdominal trauma. In addition, there are no significant differences between the LC2 and LC4 in determining the success of the NOM, so that either LC2 or LC4 may be used in predicting the success of NOM, as LC4 is the first preference. The low level of lactate clearance may be used as one of indicators to terminate non-operative management and proceed with surgery right before all symptoms of hemorrhagic shock arise.

Keywords: Blunt abdominal trauma, Lactate clearance, Non-operative management