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젖산 혈증을 동반한 패혈증 환자에서 사망률 예측 지표로써 혈중 젖산 농도의 유용성: 후향적 연구

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Blood Lactate Level as a Predictor for Mortality in Sepsis Patients with Lactic Acidosis: A Retrospective Analysis

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Background: Recent studies have reported that blood lactate level in the critically ill patients is associated with in-hospital mortality, but using blood lactate monitoring as a predictor for mortality still remains controversial. We evaluated the efficacy of blood lactate level as a predictor for mortality in sepsis patients with lactic acidosis treated with sodium bicarbonate.

Methods: We conducted a single center analysis from May 2011 through April 2014. We retrospectively analyzed 109 patients with sepsis among 230 patients with lactic acidosis treated with sodium bicarbonate. We used SOFA and APACHE II as severity scores to estimate illness severity. Cox regression analysis models were used to identify factors that affect mortality.

Results: Among the 230 patients with lactic acidosis treated with sodium bicarbonate, we finally included 109 patients (47.4%) with lactic acidosis caused by sepsis. The mean age of patients was 64.4±14.2 years, and 90 patients (82.6%) were died. The non-survivals had lower albumin levels (p=0.039), lower EF (p=0.007), lower initial pH (p=0.042), higher APACHE II scores (p=0.021), and higher blood lactate level at 6 hours, 24 hours, and 48 hours after checking the initial lactic acid levels (p=0.002, p=0.028, p=0.015, respectively). There was no significant association between CRP, procalcitonin, CRRT, types of antibiotics or species of culture organisms and mortality. Although initial and maximum blood lactate levels were not significantly associated with mortality, lactate level at 6 hours, 24 hours, and 48 hours after checking the initial lactate level was significantly associated with mortality on Cox regression analysis models after adjustment for confounding variables, including age, gender, APACHE II scores, ventilator care, and CRRT (hazard ratio [HR]: 1.011, 95% CI: 1.006-1.016, p<0.001; HR: 1.011, 95% CI: 1.004-1.018, p=0.001; HR: 1.016, 95% CI: 1.007-1.025, p<0.001, respectively).

Conclusions: Serial blood lactate level monitoring is useful in terms of predicting mortality rather than single initial lactate or maximum lactate levels in sepsis patients with lactic acidosis treated with sodium bicarbonate.

Key Words: 젖산, 젖산혈증, 패혈증
Lactate, Lactic acidosis, Sepsis