

## 응급실에서 과젓산혈증의 임상적 해석

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### How to Interpret Hyperlactatemia at the Emergency Department

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**Introduction:** Serum lactate is a marker used for predicting mortality in diverse populations. Therefore, early measurement and exact interpretation of hyperlactatemia are important. Because increased Anion Gap (AG), corrected AG (AGcrt) and Strong Ion Gap (SIG) reflect hyperlactatemia, these parameters have been used to detect hyperlactatemia. This study was conducted to analyze what is useful descriptor to predict hyperlactatemia. In addition, physicians have often faced patient with hyperlactatemia in various status of acid-base. Some clinicians still question whether acid-base derangements affect prognosis of patients with hyperlactatemia. Therefore, we evaluated the effect of acidemia on hyperlactatemia for predicting in-hospital mortality.

**Methods:** A retrospective review of 166 sets of laboratory values from emergency department of a tertiary care hospital (From Jan.2005 through Dec.2009) was performed. Data included age, SOFA, clinical diagnosis, survival, laboratory profiling, calculated AG, AGcrt, SID, and SIG. We drew ROC AUC to evaluate most reliable value for predicting hyperlactatemia. Patients were divided into survivors and non-survivors. Comparison between two groups was done by t-test and chi-square test. Statistically significant parameters were analyzed by multivariate logistic regression. We classified all subjects into 4 subgroups based on pH and lactate as well. Kaplan-Meier curves were used for comparing of each group.

**Results:** AGcrt and SIG have larger AUC than AG for predicting hyperlactatemia (AUC of AGcrt=0.713, p=0.004; SIG=0.716, p=0.004; AG=0.688, p=0.010). Hyperlactatemia (lactate>2 mmol/L) was important variable when we compared survivors to non-survivors by t-test (p<0.001). SOFA, pH and albumin were independent factors for predicting mortality (p=0.001, 0.004 and 0.006). The higher mortality rate was shown in the group of hyperlactatemia combined with acidemia.

**Conclusion:** SIG was the most predictable method for hyperlactatemia. However, we recommend direct measurement of lactate because of relatively low AUC. In addition, hyperlactatemia with acidemia was more predictable for in-hospital mortality than hyperlactatemia uncombined with acidemia.

**Key Words:** 산염기 불균형, 젓산, 사망률

Acid-base imbalance, Lactic acid, Mortality