

과젓산혈증의 진단과 해석

부산대학교병원 내과¹, 부산대학교병원 신장내과², 부산대학교병원 의학연구소³, 부산대학교병원 간호부⁴

이경남¹, 백민자⁴, 송상현¹, 이수봉², 성은영², 이하린², 이희선², 신민지¹, 양지영³

How to Interpret Hyperlactatemia at the Emergency Department

Kyung Nam Lee¹, Min Ja Baek⁴, Sang Heon Song¹, Soo Bong Lee²
Eun Young Seong², Harin Rhee², Hee Sun Lee², Min Ji Shin¹, Ji Young Yang³

Department of Internal Medicine¹ Pusan National University School of University
Department of Nephrology² Pusan National University Hospital
Medical Research Institute³ of Pusan National University Hospital
Pusan National University Hospital Nursing Part⁴

Introduction: Serum lactate is the marker used for predicting mortality in diverse populations. Therefore early measurement and exact interpretation of hyperlactatemia are important. Increased Anion Gap (AG), corrected AG (AGcrt) and Strong Ion Gap (SIG) reflect hyperlactatemia. Physicians have often faced patient with hyperlactatemia in various status of acid-base. Some authors still question whether acid-base derangement affect on prognosis of patients with hyperlactatemia. Therefore we felt need to investigate what is useful descriptor to predict hyperlactatemia and evaluated the effect of acidemia (pH<7.35) on hyperlactatemia for predicting inhospital 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 area under curve to evaluate most reliable value for predicting hyperlactatemia. Patients were divided into survivors and non-survivors. We classified all subjects into 4 subgroups based on pH and lactate as well. The risk factors for inhospital mortality were analyzed by t-test and multiple logistic regression.

Results: Serum lactate was correlated with AGcrt, SIG and AG. AGcrt and SIG have larger AUC than AG for predicting hyperlactatemia (AUC of AGcrt=0.713, SIG=0.716, AG=0.688, p=0.004, 0.004 and 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, p=0.004 and 0.006). The higher mortality rate was shown in the Group of hyperlactatemia combined with acidemia. This result support the importance of acid-base status for evaluating mortality of patient with hyperlactatemia.

Conclusion: AGcrt and SIG were more predictable for hyperlactatemia. However we recommend direct measurement of lactate because of relatively low AUC. In addition, this study revealed hyperlactatemia with acidemia predict higher inhospital mortality compared with hyperlactatemia without acidemia.

Key Words: 과젓산혈증, 음이온차, 산염기
Hyperlactatemia, Anion gap, Acid-base