

## 입원치료가 필요한 중증의 고칼륨혈증; 원인, 임상양상, 치료적 접근, 사망과 호전의 예측인자

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### Severe Hyperkalemia Requiring Hospitalization; Causes, Clinical Manifestations, Therapeutic Approaches and Predictors of Mortality and Improvement

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**Background:** Severe hyperkalemia ( $K > 6.5 \text{ mEq/L}$ ) is a potentially life-threatening electrolyte disorder. To treat it promptly and effectively, it is important to know its causes, risk factors, clinical manifestations, predictors of mortality and improvement.

**Methods:** A total of 611 patients over age 18 who were hospitalized at Seoul National University Boramae Medical Center with a diagnosis of severe hyperkalemia from August 2007 to July 2010 became the subject of this retrospective study. The medical records including comorbidities, medications, laboratory findings, and the treatment of hyperkalemia, were reviewed.

**Results:** Hypertension was the most common underlying medical condition, followed by diabetes mellitus and chronic kidney disease. The most common precipitating cause was metabolic acidosis, followed by acute kidney injury (AKI), drugs such as non-steroidal anti-inflammatory drugs (NSAIDs), angiotensin-converting enzyme inhibitors, angiotensin receptor blocker and beta blocker and infection. The level of serum potassium was significantly high in patients with the use of NSAIDs, metabolic acidosis and the history of the recurrence of hyperkalemia. Changes in electrocardiogram findings were associated with higher potassium levels, but didn't increase the mortality rate themselves. The mortality rate was high in patients with underlying disease such as liver cirrhosis and malignancy, severe infection and bleeding. Also, the mortality rate was high in patients with metabolic acidosis, hemodynamic unstable conditions needed for continuous renal replacement therapy and AKI. Furthermore, mortality was strongly correlated with the severity of hyperkalemia. Whereas, mortality rate was lower in patients with drug-induced hyperkalemia, aggravation of underlying CKD and higher baseline serum creatinine. Ironically, for those with high potassium level, coupled with the need for intensive care unit treatments due to hyperkalemia, the rate of improvement was much faster. On the other hand, higher creatinine levels were the predictor of a slower decreasing rate of improvement.

**Conclusion:** Severe hyperkalemia requiring prompt treatment was occurred in the various medical conditions. The precipitating factors were also diverse. The mortality rate was high in patients with severe underlying diseases and with AKI.

**Key Words:** 고칼륨혈증, 위험인자, 사망률

Hyperkalemia, Risk factor, Mortality rate