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The Effect of a Hourly Urine Output on the Clinical Outcomes in Nontraumatic Exercise-induced Rhabdomyolysis

Won-jae SHIN, Young-kyung KO, Jeong-hwan PARK, Jonh-ho LEE, *Young-il JO

Nephrology, Internal Medicine, Konkuk University Medical Center, Korea, South

Objectives : Early and aggressive fluid resuscitation is commonly used to prevent renal failure in rhabdomyolysis. However, the optimal fluid and rate of repletion are unclear. The purpose of this study is to evaluate the effect of the degree of urine output following fluid repletion on the clinical outcomes in nontraumatic exercise-induced rhabdomyolysis.

Methods : This study was a review of all adult patients who were diagnosed with nontraumatic exercise-induced rhabdomyolysis from 2011 to 2015 in Konkuk University Medical Center.

Results : Total 45 cases were analyzed. Patients were categorized according to the hourly urine output during initial 48 hours following fluid resuscitation: the high urine output (≥ 200 mL/hr) and the low urine output (< 200 mL/hr) group. No significant differences were noted between two groups in initial levels of CPK, serum myoglobin, and creatinine. The fluid rate of initial repletion was significantly higher in the high urine output group (4.6 ± 1.5 vs. 2.5 ± 0.7 mL/kg/hr, $p < 0.001$). The hourly urine output was also significantly high in the high urine output group (307.5 ± 116.6 vs. 138.7 ± 42.8 mL/hr, $p < 0.001$). There was no differences in the clinical outcomes including maximal level of CPK, incidence of acute kidney injury and mean hospital stay between two groups.

Conclusions : Our results indicated early fluid resuscitation, even though a urine output was less than 200 mL/hour, was effective for prevention of acute kidney injury in nontraumatic exercise-induced rhabdomyolysis.

Keywords : Rhabdomyolysis, Urine output, Outcomes