

## **Association of Hypokalemia with Severe Arrhythmias in Patients with Acute Myocardial Infarction**

Taysir S Garadah, MD\* Salah Kassab, MD, PhD\*\* Jamal Golbahar, PhD\*\*\*

**Background:** Clinical and animal studies suggest that the ischemic heart can be particularly vulnerable to hypokalemia leading to the cardiac arrhythmia.

**Objective:** To evaluate the association of severe arrhythmia with hypokalemia in patients with acute myocardial infarction (AMI).

**Design:** Retrospective study.

**Setting:** Coronary Care Unit, Salmaniya Medical Complex.

**Method:** Two hundred and seventy-four patients with AMI had serum potassium levels measured on admission along with other cardiovascular risk factors.

**Result:** Serum potassium concentrations were significantly decreased with the severity of arrhythmias (no arrhythmias;  $4.2 \pm 0.80$  mmol/l, supra-ventricular;  $3.8 \pm 0.9$  mmol/l, and ventricular arrhythmias;  $3.3 \pm 0.5$  mmol/l,  $p=0.0001$ ). The risks of supra-ventricular and ventricular arrhythmias were significantly increased by 2.4 and 8.3 fold, respectively in patients with serum potassium levels at the lowest quartile ( $<3.5$  mmol/l) compared with the highest quartile of serum potassium when adjusted for other risk factors.

**Conclusion:** The results of this study suggest that hypokalemia is independently associated with the severity of arrhythmias in patients with AMI.

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