No need for common practice of routinely supplementing potassium after heart surgery, say researchers

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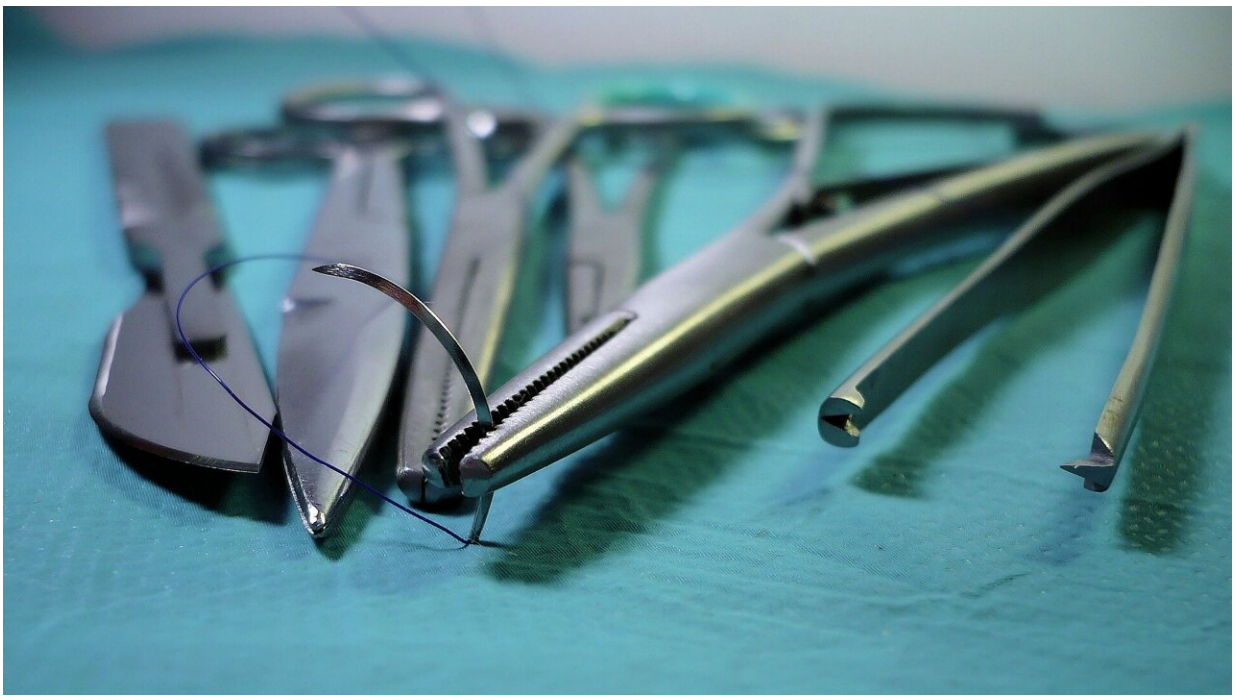

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For the prevention of new-onset atrial fibrillation (AF) after isolated coronary artery bypass graft (CABG) surgery, giving potassium supplements only when levels dropped below the lower limit of normal was non-inferior to routinely supplementing potassium to the upper limit

of normal, according to late-breaking research presented in a Hot Line session August 31 at ESC Congress 2024.

"AF occurs in around one in three patients after CABG. In many centers, patients are given potassium supplementation after surgery in an effort to maintain serum levels in the high-normal range ('tight control') to prevent AF. However, there is no robust evidence to support this practice.

"In the first trial of its kind, we were able to show that supplementing potassium only when serum levels dropped below the normal range was non-inferior to tight control for new-onset AF.

"It was safe to intervene less and there was the added benefit of reduced health care resource utilization with relaxed potassium control," explained Chief Investigator, Professor Benjamin O'Brien from the Deutsches Herzzentrum der Charité, Berlin, Germany.

TIGHT-K was an open-label, non-inferiority, randomized controlled trial. Participants with no history of atrial dysrhythmias and scheduled for isolated CABG surgery were recruited across 23 centers in the U.K. and Germany.

Patients were randomized in a 1:1 ratio to a strategy of tight potassium control (potassium supplementation if serum levels fell below 4.5 mEq/L) or relaxed potassium control (potassium supplementation only if serum levels fell below 3.6 mEq/L).

The primary endpoint was the presence of new-onset AF after cardiac surgery (AFACS) in the 120 hours (5 days) after the operation, or up until discharge from hospital, whichever was sooner.

AFACS was defined as an episode of AF, flutter or tachyarrhythmia, of

at least 30 seconds duration and all primary outcome events were validated by an Event Validation Committee, blinded to treatment arm allocation.

Secondary outcomes included non-AFACS dysrhythmias, in-hospital and 6-month mortality, length of intensive care unit/hospital stay, and costs relating to the purchasing and administration of potassium therapy.

In total, 1,690 participants were randomized, with a mean age of 64.7 years and 15% were female. The mean European System for Cardiac Operative Risk Evaluation (EuroSCORE) II score was 1.5%.

There was no significant difference in the primary endpoint, which occurred in 27.8% of patients in the relaxed control group and 26.2% in the tight control group.

The rate of AFACS detected by any means (clinically and/or by ambulatory heart rhythm monitoring) was 33% in both groups. Furthermore, there was no significant difference in non-AFACS dysrhythmias, including ventricular tachycardia, with relaxed control (19.1% and 12.2%, respectively) vs. tight control (21.1% and 14.8%, respectively).

The median (interquartile range) number of potassium administrations in the relaxed control group was 0 (0–5) compared with 7 (4–12) in the tight control group, and costs were four-fold higher with tight control.

"We were able to show that routinely supplementing potassium for tight control offers no benefits compared with relaxed control but is more expensive. Unnecessary intervention can carry risks, such as drug errors, and can negatively impact the patient experience, for example, the unpleasant taste of oral potassium supplements.

"So, the results from TIGHT-K are good news—we can safely stop the widespread practice of maintaining high-normal potassium levels after isolated CABG, improve the patient experience and also save money," concluded Professor O'Brien.

Provided by European Society of Cardiology

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