Electrocardiography-controlled central venous catheter tip positioning in patients with atrial fibrillation | 1

Electrocardiography-guided central venous catheter tip positioning is a feasible real-time method for patients with atrial fibrillation. Combined with ultrasound, the electrocardiography-controlled central venous catheter placement may eliminate the need for postinterventional radiation exposure” Steinhagen et al (2018).

Abstract:

INTRODUCTION: A significant increase of the p-wave of a real-time intracavitary electrocardiography is a reliable and safe method to confirm the central venous catheter tip position close to the atrium. However, conflicting data about the feasibility of electrocardiography exist in patients with atrial fibrillation.

METHODS: An observational prospective case-control cohort study was set up to study the feasibility and accuracy of the electrocardiography-controlled central venous catheter tip placement in 13 patients with atrial fibrillation versus 10 patients with sinus rhythm scheduled for elective surgery. Each intervention was crosschecked with ultrasound-guided positioning via right supraclavicular fossa view and chest radiography. Ultrasound-guided supraclavicular venipuncture of the right subclavian vein and guidewire advancement were performed. A B-mode view of the superior vena cava and the right pulmonary artery was obtained to visualize the J-tip of the guidewire. The central venous catheter was advanced over the guidewire and the electrocardiography was derived from the J-tip of the guidewire.
protruding from the central venous catheter tip. Electrocardiography was read for increased p- and atrial fibrillation waves, respectively, and insertion depth was compared with the ultrasound method.

RESULTS: Electrocardiography indicated significantly increasing fibrillation and p-waves, respectively, in all patients and ultrasound-guided central venous catheter positioning confirmed a tip position within the lower third of the superior vena cava.

CONCLUSION: Electrocardiography-guided central venous catheter tip positioning is a feasible real-time method for patients with atrial fibrillation. Combined with ultrasound, the electrocardiography-controlled central venous catheter placement may eliminate the need for postinterventional radiation exposure.

Reference:

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