A modified intracavitary electrocardiographic technique can be safely used for detecting the location of the tip of central venous catheters in atrial fibrillation patients: the highest activity of the f waves is an accurate indicator of the location of the tip at the cavo-atrial junction" Calabrese et al (2018).

Abstract:

INTRODUCTION: The intracavitary electrocardiographic method is recommended for assessing the location of the tip of central venous catheter when there is an identifiable P wave. Previous reports suggested that intracavitary electrocardiographic method might also be applied to patients with atrial fibrillation, considering the so-called f waves as a surrogate of the P wave.

METHODS: We studied 18 atrial fibrillation patients requiring simultaneously a central venous catheter and a trans-esophageal echocardiography. An intracavitary electrocardiographic trace was recorded with the catheter tip in three different positions defined by trans-esophageal echocardiography imaging: in the superior vena cava, 2 cm above the cavo-atrial junction; at the cavo-atrial junction; and in the right atrium, 2 cm below the cavo-atrial junction. Three different criteria of measurement of the f wave pattern in the TQ tract were used: the mean height of f waves (method A); the height of the highest f wave (method B); the difference between the highest positive peak and the lowest negative peak (method C).
RESULTS: There were no complications. With the tip placed at the cavo-atrial junction, the mean value of the f waves was significantly higher than in the other two positions. All three methods were effective in discriminating the tip position at the cavo-atrial junction, though method B proved to be the most accurate.

CONCLUSION: A modified intracavitary electrocardiographic technique can be safely used for detecting the location of the tip of central venous catheters in atrial fibrillation patients: the highest activity of the f waves is an accurate indicator of the location of the tip at the cavo-atrial junction.

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