Impact of phase of respiration on central venous catheter tip position

#IVTEAM #Intravenous literature: “The central catheter tip position varied significantly with respiratory motion, with a mean excursion of 9 mm. The right cardiomedialstinal border demonstrated a strong correlation with the actual location of the superior cavo-atrial junction in expiration, but not in inspiration.” Pan et al (2013).

Reference:


Abstract:

PURPOSE: To determine the impact of the phase of respiration on CVC tip position using cross-sectional imaging.

METHODS: We retrospectively analyzed the CT scans of 24 consecutive patients (eight men and 16 women, mean age 56.3 years, range 18-79) who underwent a CT scan protocol that includes both imaging of the thorax in inspiration and expiration. Only patients with a central venous catheter and absence of any substantial pulmonary pathology that might affect lung volumes were included. Measurements of the catheter tip location and central venous structures were obtained from inspiratory and expiratory phase images in each patient and compared using the paired $t$ test.

RESULTS: The length of the SVC and superior mediastinum were significantly longer during inspiration compared to expiration (9 mm and 7 mm respectively, P

CONCLUSIONS: The central catheter tip position varied significantly with respiratory motion, with a mean excursion of 9 mm. The right cardiomediastinal border demonstrated a strong correlation with the actual location of the superior cavo-atrial junction in expiration, but not in inspiration.

Other intravenous and vascular access resources that may be of interest (External links - IVTEAM has no responsibility for content).
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