Noninvasive assessment of the patient hydration condition using the ultrasound is a simple and practicable measure in emergency. With regard to the considerations, it is possible to estimate CVP via diameter measurement and cross-section of the central veins" Abbasian et al (2015).

Abstract:

BACKGROUND: In order to assessment of intravascular fluid measurement of central venous pressure (CVP) is used via central venous catheterization (CVC). This procedure is highly invasive and may cause serious complications such as pneumothorax, infection, hematoma and etc. It is so valuable procedure if we can uses a less invasive or noninvasive procedure to assess patients intravascular fluid in critical positions.

OBJECTIVES: In this study, the ultrasound was used to measure the central venous pressure (CVP).

PATIENTS AND METHODS: In this study, patients with Central venous catheterization were selected using simple random sampling. The largest diameter of longitudinal, transverse views and the cross-section of inferior vena cava (IVC) and internal jugular vein (IJV) were measured using the ultrasound in the bedside of the patients. Central venous pressure was measured using routine methods. Correlations between variables were analyzed using SPSS and linear regression.

RESULTS: Twenty patients with the mean age of 60.3 were studied. The main reason for cardiac catheterization was shock. There are no relationship between anterior posterior diameter of inferior vena cava and CVP of patients (P = 0.257). The longest diameter of IVC in ultrasonographic transverse view had significant association with CVP of patients (P = 0.045) but in patients with BMI > 25 it was not significant. Cross section of internal jugular vein had significant association with CVP of patients (P = 0.003). Longitudinal diameter of internal jugular vein had no significant association with CVP of patients (P = 0.052), but transverse diameter of internal jugular generally had significant association with CVP of patients (P = 0.003). Cross section of internal jugular had significant association with CVP (P = 0.001).

CONCLUSIONS: Noninvasive assessment of the patient hydration condition using the ultrasound is a simple and practicable measure in emergency. With regard to the considerations, it is possible to estimate CVP via diameter measurement and cross-section of the central veins.

Reference:

Abbasian, A., Feiz Disfani, H., Afzalimoghaddam, M., Talebian, M.T., Masoumi, B. and Nasr-Esfahani, M. (2015) Measurement of Central Venous Pressure Using Ultrasound in Emergency Department. Iranian Red Crescent Medical Journal. 17(12), p.e19403. eCollection 2015.

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