

The aim of this study was to evaluate the accuracy of measurement of CVP using a new noninvasive method based on near infrared spectroscopy (NIRS) in a group of cardiac surgical Intensive Care Unit (ICU) patients” Sathish et al (2016).

Abstract:

INTRODUCTION: Central venous pressure (CVP) measurement is essential in the management of certain clinical situations, including cardiac failure, volume overload and sepsis. CVP measurement requires catheterization of the central vein which is invasive and may lead to complications. The aim of this study was to evaluate the accuracy of measurement of CVP using a new noninvasive method based on near infrared spectroscopy (NIRS) in a group of cardiac surgical Intensive Care Unit (ICU) patients.

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METHODOLOGY: Thirty patients in cardiac surgical ICU were enrolled in the study who had an in situ central venous catheter (CVC). Sixty measurements were recorded in 1 h for each patient. A total of 1800 values were compared between noninvasive CVP (CVPn) obtained from Mespere VENUS 2000 CVP system and invasive CVP (CVPi) obtained from CVC.

RESULTS: Strong positive correlation was found between CVPi and CVPn ($R = 0.9272$, $P < 0.0001$). Linear regression equation - $CVPi = 0.5404 + 0.8875 \times CVPn$ ($r^2 = 0.86$, $P < 0.001$), Bland-Altman bias plots showed mean difference \pm standard deviation and limits of agreement: -0.31 ± 1.36 and -2.99 to $+2.37$ (CVPi-CVPn).

CONCLUSION: Noninvasive assessment of the CVP based on NIRS yields readings consistently close to those measured invasively. CVPn may be a clinically useful substitute for CVPi measurements with an advantage of being simple and continuous. It is a promising tool for early management of acute state wherein knowledge of CVP is helpful.

Reference:

Sathish, N., Singh, N.G., Nagaraja, P.S., Sarala, B.M., Prabhushankar, C.G., Dhananjaya, M. and Manjunatha, N. (2016) Comparison between noninvasive measurement of central venous pressure using near infrared spectroscopy with an invasive central venous pressure monitoring in cardiac surgical Intensive Care Unit. *Annals of Cardiac Anaesthesia*. 19(3), p.405-9.

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