Centro: Saúde

Curso: Medicina

Titulo: **Respiratory variation of inferior vena cava and collapsibility as a guide to fluid therapy: experience in a public ICU in Rio de Janeiro**

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RESUMO

The diagnosis early and accurate treatment reduce the mortality of shock. There are many methods to determine the benefit of volume infusion: clinical examination; central venous pressure; Ultrasound Methods etc. In opposition to other methods, inferior vena cava (IVC) respiratory variation is simple, fast and non-invasive. Considering this, is a coherent method to guide fluid therapy. The objective is to evaluate respiratory variation of IVC diameter and collapsibility as a guide to volume infusion in patients with shock. Compare these data with laboratory and clinical parameters of perfusion. For the methods, we use 24 patients with hemodynamic instability or norepinephrine dependency; age= 14-78 years; deep vein access in superior vena cava and mechanical ventilation from October 2013 until February 2015 in the ICU of Hospital Municipal Souza Aguiar. Measurement of respiratory variation of IVC diameter and collapsibility; serum lactate and mean arterial pressure (MAP) before and after 24 minutes of 400 mL 0.9% saline infusion. Our records allowed us to get the results, whose average MAP (0 min) = 85,3 mmHg and (24 min) = 90,8 mmHg . The difference of MAP (0-24) was 5,5mmHg. Average serum lactate (0 min) = 1,54mmol / L and (24 min) = 1,78mmol / L (these results ignore the patient number 8, as this clearly out of the general average). The difference of serum lactate (0-24) was 0,24mmol/L but it was 0-0,4mmol/L in 92% of patients. Average IVC collapsibility (0 min) = 17.05% [0-48,57] and (24 min) = 12.86% [1,85-46]. When collapsibility >= 20%, MAP(0-24) = 83,8-87,7 (increased 3,9 = 4,6%) and < 20%, MAP (0-24) = 86,1-92,7 (increased 6,6 = 7,6%). Average minimum diameter of IVC (0 min) = 1.43 cm [0,54-2,58] and average maximum diameter of IVC (0 min) = 1.70 cm [0,88-2,85]. Average minimum diameter of inferior vena cava (24 min) = 1,75 cm [0,81-2,66] and average maximum diameter of IVC (24 min) = 1,98 cm [1,30-2,75]. Data such as MAP and respiratory variation of IVC collapsibility and diameter, before saline infusion of 400mL (0.9%), helped to demonstrate the volemia and the answer to saline infusion: MAP and IVC diameter increasing and IVC collapsibility decreasing. However, IVC collapsibility is a useful instrumental in defining the therapeutic approach just when >50%. This is evidenced by the MAP variability after infusion volume, because when the collapsibility of patients is<20% MAP varied over 7,6%, whereas patients with > 20% collapsibility had lower response (3,6%). We believe that these results are a consequence of greater clinical severity of patients with collapsibility<20%. They have less hemodynamic response, as shown by: norepinephrine (mean 12,6mL/hr and during the study highest elevation of 7ml/hr) and [1,1 - 50mL/hr]; MAP [49-103, before the infusion; 56-107 after infusion] and serum lactate (mean of 4,2 before infusion and 4,9 after infusion) and [0,5 - 26, before infusion; 0,7 - 26, after infusion]. Our results demonstrated that the use of serum lactate in episodic measures for guiding infusion volume is not a good predictor of clinical because their values after infusion volume can be higher. We believe that is due to the first steps after infusion because the "lactate is being flushed out". We propose a series of measured values for serum lactate effectively demonstrate the benefit of fluids. We recommend the incorporation of this technology as a routine in the ICU, because is a viable method, non-invasive, effective and must be performed to determine the best therapeutic choice when clinical parameters are not extremely