

Category :**IV fluids: amount**

**A80 - The effects of fluid bolus technique with a limited volume of crystalloids on oxygen delivery: a non-inferiority study.**

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### **Introduction:**

Hemodilution after fluid bolus (FB) limits the potential increase in oxygen delivery (DO<sub>2</sub>). Minimizing FB volume can decrease the hemodilution effects but also the cardiac index (CI) elevations. The study aimed to assess the DO<sub>2</sub> changes after FB of different technics. We speculated that FB effects on DO<sub>2</sub> are not inferior when a limited crystalloid fluid volume is given within a short period than larger volumes of crystalloids or colloids given at longer periods.

### **Methods:**

This prospective observational study was conducted in critically ill adult patients without active bleeding and venous-to-arterial carbon dioxide tension (P<sub>va</sub>CO<sub>2</sub> > 6) mmHg treated with FB. Arterial blood gas samples were taken, and CI was measured through transthoracic echocardiogram before and after FB. The primary endpoint was the DO<sub>2</sub> changes after FB, and the secondary endpoint was Hb changes.

### **Results:**

Sixty patients were enrolled with P<sub>va</sub>CO<sub>2</sub> 8.5 mmHg (IQR:7.5 to 10.2). Twenty-five patients received FB with colloids (7ml/kg (IQR:6.25 to 7.6)) within 30min (IQR:28 to 39), 14 patients received FB with crystalloids (16ml/kg (IQR:11 to 20)) within 40 min (IQR: 28 to 40) and 21 patients crystalloids (4ml/kg (IQR: 3.6 to 4.6)) within 20 minutes (infusion pump) (P <0.01). FB with crystalloids 4ml/kg increased DO<sub>2</sub> 9% (IQR: -1 to 19) compared to -2% (IQR:-9 to 16) and 5% (IQR: -8 to 14) in patients who received FB with higher volumes of crystalloids and colloids, respectively (P =0.15) (Figure). FB with crystalloids 4ml/kg resulted to a decrease in Hb -3% (IQR:-6 to -1) compared to -7% (IQR: -11 to -4) and -8% (IQR: -11 to -5) in patients who received FB with higher volumes of crystalloids and colloids, respectively (P <0.01).

### **Conclusion:**

Fluid bolus with a limited volume of crystalloids given within 20 minutes has no inferior effects on oxygen delivery and has significantly lower hemodilution effects.

### **Image :**

