

# A blood saving strategy based on acute normovolemic hemodilution in high-risk cardiac surgery patients. A multicenter, randomized trial.

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Argomento: Anestesia cardiotoracica

**Background** Transfusions are one of the most overused treatments in modern medicine, and saving blood is one important issue worldwide. Cardiac-surgery makes up a large percentage of the overall blood components consumption. Acute normovolemic hemo-dilution (ANH) is a well-known strategy which has been used for years without the support of high-quality evidence [1] to improve post-Cardio Pulmonary Bypass coagulation and reduce Red blood cells (RBCs) transfusion.

**Objectives** This is a phase-IV, multicenter, randomized, single blind trial, to assess the effect of ANH on the number of patients receiving RBCs transfusion after elective cardiac surgery. Secondary endpoints will include: 30-day mortality, bleeding and ischemic complications and the incidence of Acute Kidney Injury.

**Methods** We will enroll 2000 adults undergoing elective cardiac surgery. Fourteen Italian hospitals are willing to participate and we'll still looking for new centers. In the treatment arm, after induction of general anesthesia, a total blood volume of at least 650 ml of blood will be drawn from a central line [2]. The amount of volume drawn can be replaced with Ringer's lactate or a similar crystalloid fluid up to a 3:1 ratio.

**Expected results** We estimate an absolute reduction of 7% in the transfusions rate of cardiac-surgery patients. If our hypothesis will be confirmed, approximately, 1400 patients per year will not be transfused if we make a conservative estimate of 40.000 patients operated each year of cardiac surgery in Italy, with 50% of them eligible to receive ANH. This study received a grant from Ministry of Health, Ricerca Finalizzata, RF-2018-12366749.

Reference:

- 2017 EACTS/EACTA Guidelines on patient blood management for adult cardiac surgery. J Cardiothorac Vasc Anesth. 2018 Feb;32(1):88-120.
- Barile L et al., Acute Normovolemic Hemodilution Reduces Allogeneic Red Blood Cell Transfusion in Cardiac Surgery: A Systematic Review and Meta-analysis of Randomized Trials. Anesth Analg. 2017 Mar;124(3):743-752.