THROMBOELASTOMETRY AS A GUIDE FOR BLOOD MANAGEMENT IN THORACOABDOMINAL ANEURYSM SURGERY

Bueno L.¹, Martins K.¹, Beltrao R.¹, Fossati S.¹, Cernuda I.², Aguilar C.¹

Department of Anaesthesiology and Critical Care¹. Department of Vascular Surgery.²
Hospital Clínico San Carlos. Madrid.

BACKGROUND:

Rotational thromboelastometry (ROTEM®) is a viscoelastometric method that tests coagulation in a dynamic and global way analysing a whole blood sample.

GOAL OF THE STUDY:

The aim of this study is to assess the results of using thromboelastometry as guidance for **haemoderivates management** in elective open repair of aortic aneurysm as an attempt to reduce **postoperative complications** associated to non-selective haemoderivates transfusion.

MATERIAL AND METHODS:

- ❑ A prospective cohort study was performed with nonrandomized sampling using a retrospective control group.
- ❑ **29 patients** undergoing thoracoabdominal aneurysms open repair were included.
- ❑ Homogeneously distributed in **2 groups**:
 1. **Group A (Control)**: 14 patients. Transfused according to classic protocols.
 2. **Group B (Test)**: 15 patients. Thromboelastometric based transfusion algorithms

Main variables:

- Fresh frozen plasma (FFP) administration.
- Fibrinogen supply.
- Platelet transfusion.

Secondary variables:

- Postoperative adverse events.
- ICU stay.
- Hospital stay.

RESULTS AND DISCUSSION:

- ❑ Decremental transfusion of **fresh frozen plasma** in group B with respect to group A ($p=0,017$). (**Image 1**)
- ❑ Increased use of **fibrinogen**, that was administrated in 86,7% of patients in group B, comparing to 35,7% patients in group A ($p=0,009$). (**Image 2**)
- ❑ A rise in the use of **platelets** in group A (92,8%), comparing to group B (73,3%) ($p=0,038$). (**Image 3**)
- ❑ 35.7% patients in group A had **postoperative respiratory complications**, with respect to 6.7% in group B, although this difference were not statistically significant ($p=0,08$). (**Image 4**).
- ❑ No differences were found in **prothrombin complex administration, homologous blood transfusión, UCI or hospital stay**.

Image 1. Fresh frozen plasma transfusion. ($p=0.017$)

Image 2. Use of fibrinogen. ($p=0.009$)

Image 3. Use of platelets. ($p=0.038$)

Image 4. Respiratory complications. ($p=0.08$ not statistically significant)

CONCLUSIONS:

Based on our experience, the use of a viscoelastic tests such as thromboelastometry, allows a **substantial change in the management of blood products**, with a **decrease in the use of fresh frozen plasma** and **increase in the administration of fibrinogen**. Regarding postoperative respiratory complications it seems that increasing our sample could yield to statistically significant results.