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Reducing Post-Operative Complications in Cardiac Surgery Patients

Undergoing cardiovascular surgery is not without risk; therefore, any opportunity to minimize risk to improve outcomes is extremely important. Post-operative complications such as coagulopathy and post-operative bleeding are the most common complications for patients undergoing cardiac surgery, with approximately 20% of patients presenting with significant bleeding. Often, the treatment for post-operative bleeding can result in excessive use of allogeneic blood products and hemostatic pharmacological agents, which can add a layer of complexity to patient outcomes. Blood transfusions for example are associated with increased morbidity (cardiac and non-cardiac adverse events), hospitalization cost, and mortality.

A key goal of post-operative management is early identification and treatment of coagulopathy to reduce the need for re-exploration, reduce blood product use and reduce the need for pharmacological intervention. An integrated clinical care team at Hospital Virgen Macarena in Sevilla, Spain sought to improve early diagnosis, and targeted and effective therapy of perioperative and postoperative coagulopathy. This was achieved through implementation of viscoelastic point-of-care tests (POCT), such as rotational thromboelastometry, in conjunction with a specific algorithm for coagulation management in cardiac surgery, allow for better

control of hemostatic pathology.

When compared to pre-implementation, the strategic coagulation management algorithm using viscoelastic POCT reduced the incidence of post-op bleeding by 4.2%, decreasing the incidence of allogeneic blood transfusion by 9.5%, as well as decreasing the need for re-exploration by 3.1%. There was also a reduction in ICU complications with a corresponding reduction in patient length of stay in the ICU. Reduction in hematologic complications resulted in mitigated costs exceeding €300,000 (Costs: €622,008 pre-viscoelastic POCT, €312,750 post-viscoelastic POCT), in addition to also reducing healthcare costs related to blood products and laboratory testing by €10,256 (from €31,059.00 to €20,803.00).

The integrated clinical from Seville, Spain was recently awarded an 2020 UNIVANTS of Healthcare Excellence award with recognition of Distinction for their impressive teamwork and patient outcomes. Congratulations to Isabel Rodriguez Martin, MD, PhD, Physician Clinical Biochemistry, Jesús Villanueva Mena-Bernal, MD, PhD, Anesthesiologist, Francisco Javier González Fernández, MD, PhD, Cardiac Surgeon, José Garnacho Montero, MD, PhD, Intensive and Critical Care Physician, Juan Galán Paez, Data Analytics/Information Management.

>300,000€

in mitigated costs and complications

1.9%

REDUCTION

in ICU complications
post cardiac surgery

2.1%

REDUCTION

of in-hospital mortality
following cardiac surgery

KEY TAKEAWAYS

1. Cardiovascular surgery is associated with significant complications, of which bleeding and coagulopathy are significant contributors.
2. Early identification to enable early treatment is crucial for improving outcomes, minimizing allogenic blood product use, and reducing resource utilization.
3. Collaboration with laboratory and clinical colleagues can enable implementation of new processes to enable optimal utilization of novel laboratory tests.