

How Chest Tube Clogging Leads to

Retained Blood Syndrome (RBS)*

Which Can Trigger Post-op Atrial Fibrillation (POAF)

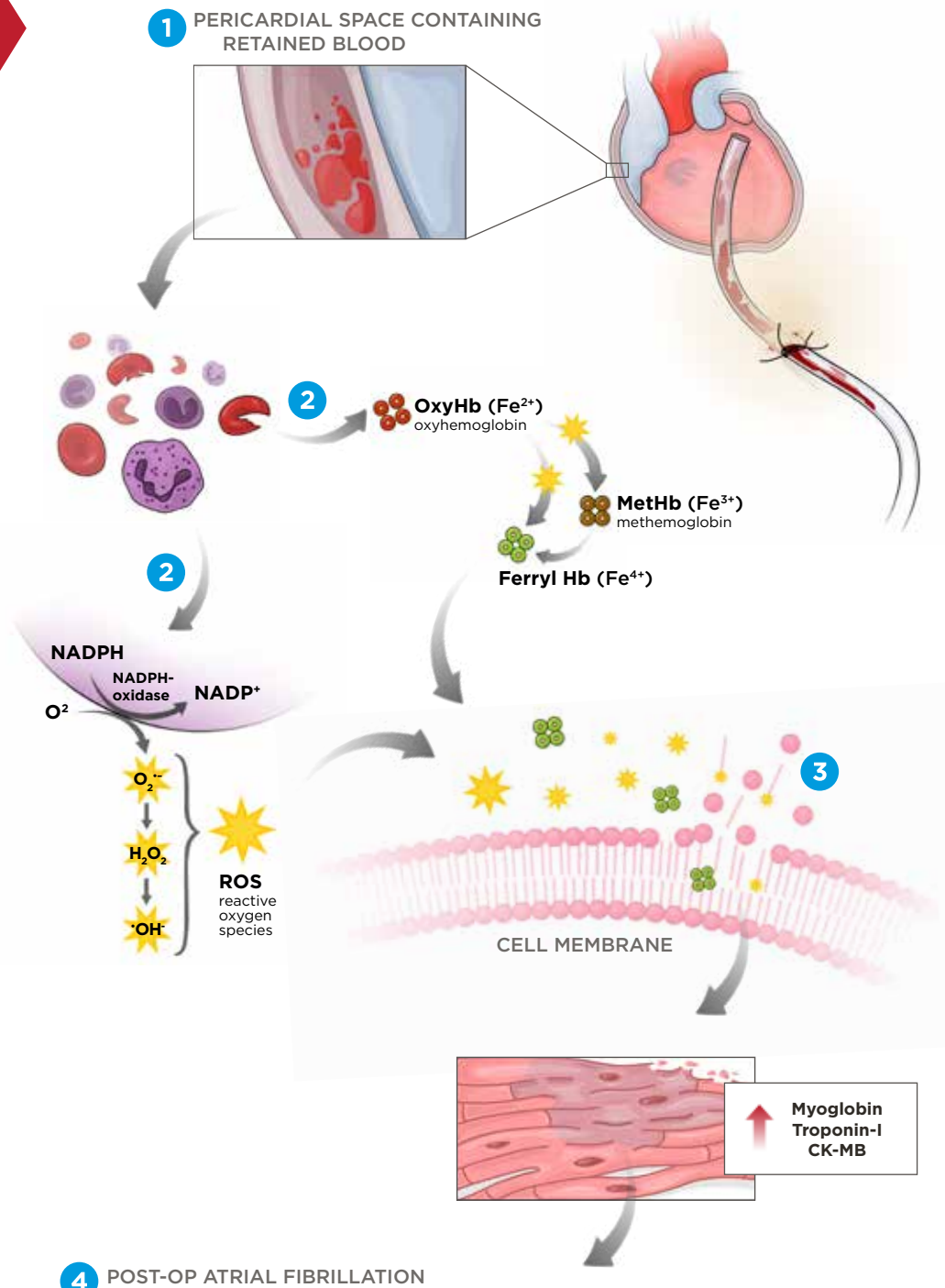
36% of chest tubes clog completely¹

- 1 Retained blood left behind by clogged chest tubes clots in the pericardial space.
- 2 Red blood cell hemolysis and pro-inflammatory recruitment of white blood cells leads to free radical release and the production of reactive oxygen species (ROS)².
- 3 ROS cause lipid peroxidation, which results in the breakdown of cell membranes, leading to myocardial surface damage, as indicated by increased local biomarkers².
- 4 This kind of myocardial damage from oxidative stress may trigger post-operative complications like POAF.

Blocked chest tubes can lead to **Retained Blood Syndrome (RBS)** - the composite of drainage-related post-cardiothoracic surgery complications that are detrimental to patient outcomes and may require early or late reinterventions.

Retained Blood Syndrome (RBS) complications can occur at any stage of recovery and may include **hemothorax**, **pericardial tamponade**, **bloody pleural** or **pericardial effusion**, **postoperative atrial fibrillation (POAF)**, **acute kidney injury** and **stroke**.

56% higher risk of POAF for patients with clogged chest tubes¹



WHAT IF YOU COULD REDUCE THE INCIDENCE OF RBS AND POAF?

In a recent peer-reviewed study in the *Journal of Thoracic and Cardiovascular Surgery*, the PleuraFlow® Active Clearance Technology® (ACT) System was reported to reduce **Retained Blood Syndrome (RBS) reinterventions from 20% to 11%** (a 43% reduction) and **Post-Operative Atrial Fibrillation (POAF) from 30% to 20%** (a 33% reduction). That's because the PleuraFlow ACT System proactively prevents or minimizes chest tube occlusions and reduces retained blood - a known contributor to POAF and other RBS complications which can increase length of stay (LOS), mortality rates and hospital readmissions.^{2,3}



Read the clinical article published in the *JTCVS*



1 Karimov, J.H., Gillinov, A.M., Schenck, L., et al. Incidence of chest tube clogging after cardiac surgery: a single-centre prospective observational study. *Eur J Cardiothorac Surg.* 2013;44(6):1029-1036. doi:10.1093/ejcts/ezt140.

2 Kramer P.A., Melby S.J., et al. Hemoglobin-associated oxidative stress in the pericardial compartment of postoperative cardiac surgery patients. *Lab Invest.* 2015;95(2):132-41.

3 Sirch J, Ledwon M, Puski T, Boyle EM, Pfeiffer S, Fischlein T. Active Clearance of Chest Drainage Catheters Reduces Retained Blood. *Journal of Thoracic and Cardiovascular Surgery.* March, 2016 (e-published 2015 Oct 22).

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