

## SOFT JELLY PLUG OF PLATELET-FIBRIN RICH ARTERIAL THROMBUS KILLS THE HEART AND BRAIN: PREVENTIVE MEASURES WITH DAILY EXERCISE, DIETS AND DRUGS

MRINAL KANTI DEWANJEE\*

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*Using Indium-111 tagged platelets and Iodine-125 tagged fibrinogen, we developed the methods of measurement of the slippery and deadly platelet-fibrin thrombus in the animal models and patients, that result in the choking death of heart and brain. We also observed that the rapid intervention itself for reopening the blocked artery, e.g., angioplasty and coronary artery bypass surgery (CABG) also injures the internal lining of endothelial cells, their patchy losses, and the rupture of artery wall during high-pressure angioplasty, causing the early closure of repaired conduit. We used the dual antiplatelet drug therapy, e.g., aspirin and Plavix for angioplasty and aspirin-dipyridamole for CABG for maintaining blood flow. The adherent platelet thrombus radioactivity was used as an index of thrombogenicity and was converted into number of platelets per unit area, identified as the regional platelet density (RPD). The RPD values played a critical role in screening a dozen of antiplatelet drugs in the canine and porcine models and finally into patients after FDA approval of these drugs. In addition, the surfaces of artificial blood vessels, artificial heart valves and heart-lung machine used a variety of biopolymers, e.g., the Dacron polyester, Silicone and Teflon and metals, e.g., stainless steel, nickel-titanium alloy used in stent, are also highly thrombogenic and patients must be treated with antiplatelet drugs. Considering the small diameter of the coronary artery (2-3 mm) and cerebral artery (3-4 mm), even smaller in the Asian men and women, we must strive against the seven decades of cholesterol deposition with the statins and daily exercise. However, platelet-fibrin thrombus formed on the cholesterol-loaded ruptured artery, could block it in ~30 minutes. About 70-100 million platelets are found in our measurements in the blocking thrombus along with ~400 million fibrin strands. Our blood-circulatory network of ~100,000 miles of highways, arteries, veins, and capillary network is susceptible to continuous damage by smoking, pollution and viral attack-COVID-19. We must protect the circulatory network, if we want to live beyond 80-90 years and enjoy a quality of creative life.*

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