

First do no harm: postoperative thromboprophylaxis following open heart surgery

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We recently operated on a patient with an acute aortic dissection Stanford Type A. The postoperative period was uneventful. Our intensive care unit team started anticoagulation for thromboprophylaxis within the first postoperative day, basing their decision on the European Association for Cardio-thoracic Surgery (EACTS) guidelines [1]. After reviewing these and other guidelines carefully, we realize that the EACTS guidelines give a general recommendation for all comers, advising that all patients who undergo cardiac surgery receive prophylactic anticoagulation from the first postoperative day [1]. We find that this recommendation is too broad and merits discussion until updated guidelines are available.

There is a risk of deep vein thrombosis (DVT) and pulmonary embolism (PE) following cardiac surgery. This complication is not rare, but it not as high as in other types of surgery, such as orthopedic surgery. The risk of DVT and/or PE after cardiac surgery is defined as moderate by the latest American College of Chest Physicians guidelines [2].

The EACTS guidelines advise prophylactic anticoagulation for all patients who have undergone cardiac surgery, which is not correct, in our opinion. Every patient should be evaluated on his/her own basis according to personal risk factors, operation type, bleeding risk and platelet count, as mentioned in the National Institute for Health and Clinical Excellence (NICE) recommendations [3].

We commend Dunning *et al.* for producing the EACTS guidelines based on the available literature; however, the studies they are based on are quite old. For example, the references of the NICE recommendations are from 1980 to 1996 and include a limited number of patients; some of them do not even include cardiac surgery patients. Among the five studies used for the NICE recommendations on thromboprophylaxis following cardiac surgery, two include only vascular surgery patients, and the study populations are very small. Interestingly, one study shows eight times more bleeding with prophylactic

anticoagulation, although this is not mentioned as the *P*-value was >0.05 .

Cardiac surgery patients are a different population from general or orthopedic surgery patients who represent the majority of patients included in the studies that were used as the basis of the EACTS guidelines. How many general surgery patients have 2 h of foreign surface-blood contact, haemostatic hurricane and low platelet count with poor function? Finally, among the studies that included cardiac surgery patients, the entire spectrum of cardiac surgery was not included. None of the studies included enough aortic surgery patients, and most likely, no aortic dissection patients. These are the subset of patients at highest risk of bleeding and tamponade, yet should the recommendations for prophylactic anticoagulation apply to them?

Clearly, there is a need to redraw the frame of thromboprophylaxis following cardiac surgery, including the indications and timing, by organizing more studies including all subsets of patients. Until these guidelines are prepared by our societies, all patients should be discussed personally by calculating their risks of DVT, bleeding, pericardial tamponade and benefits of preventing PE.

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