

Anticoagulation after Heart Valve Replacement

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In an attempt to minimize thromboembolic complications after heart valve replacements a proper program for postoperative anticoagulant treatment seems to be of major importance (1). An aggressive approach towards the initiation and early postoperative anticoagulant treatment have been applied with good results at the Department of Thoracic Surgery, University Hospital, Lund, Sweden.

Program in Lund:

On the morning after surgery, provided the bleeding has subsided, Warfarin sodium, normally 10-15 mg, is given intravenously. The second postoperative morning most patients are able to take Warfarin sodium orally, but in cases of nausea, other gastrointestinal problems or instances where the patient is unable to take oral medication for any reason, the intravenous administration is continued. Prothrombin values are checked daily aiming for a therapeutic range of Thrombotest (Nycomed, Norway) 5-15%, corresponding to an international normalized ratio (INR) of 4.8 - 2.1. Doses of Warfarin sodium are adjusted according to the actual prothrombin level and depending on the existence of any renal or hepatic dysfunction. Heparin is given intravenously four times daily from the second postoperative day as long as the patient is not within the desired range of anticoagulation. At discharge from our department, full responsibility for an adequate anticoagulant therapy is taken by the local physician or cardiologist. The desired level of long-term anticoagulation is maintained at a Thrombotest value of 5-15% (INR 4.8-2.1). A summary of our regime is given in table 1.

Results:

Between 1980 and 1986, 1193 patients were operated with heart valve replacements (mainly mechanical prostheses). Early follow-up

was 30 days postoperatively and during this period there were no valve thrombosis nor any episodes of systemic embolism when the program was fully applied. Cardiac tamponades were few and normally easily handled (2). There were no deaths due to anticoagulation related non-cardiac bleedings.

Table 1.

Routine for anticoagulation after heart valve replacement, Lund, Sweden.

Warfarin sodium: Initiated on the first postoperative morning by giving 10-15 mg i.v., normally continued by daily oral medication. Therapy monitored with Thrombotest (prothrombin test.)

Heparin: Given from the second postoperative day (after removal of chest drains). Doses depending on bedside determinations of the clotting time. Maintained as long as the patient is not within the therapeutic range.

10 min	5000 I.U. i.v.
10-20 min	2500 I.U. i.v.
20 min	No heparin given

References:

1. Edmunds LH Jr. Thromboembolic complications of current cardiac valvular prostheses. *Ann Thorac Surg* 1982;34:96-106.
2. Solem J-O., Kugelberg J., Stahl E., Olin C. Late cardiac tamponade following open-heart surgery. *Scand J Thor Cardiovasc Surg* 1986;20:129-131.

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