



CHAPTER II

LITERATURE REVIEW

Sehat et al.(4) calculated the blood loss in TKA and found the mean total blood loss was 1474 ml. and the mean hidden loss of 735 ml. It can be seen that the hidden loss is 50% of the total loss, making the true loss following TKA twice the volume usually recorded. They concluded that when preparing for blood transfusion TKA, account should be taken of the probable substantial hidden loss.

Willemen et al.(5) reported a randomized, prospective study of 1 versus 2 days of closed suction drainage. They found 85% of blood loss occur in the first 24 hours. Cultures from the drain tip was positive in 25% of the drain removed at 48 hours, but in non of those removed at 24 hours. Zamora-Navas et al.(6) reported closed suction drainage after 48 hour, 91% and 97% of the total bleeding volume was collected and there were two cases of having Staphylococcus epidemidis was isolated in cultures from the subcutaneous portion of the drain.

Parker et al.(7) studied a meta-analysis of 3689 wound from hip and knee arthroplasty. They found the drained wound associated with a need for more transfusion and the non wound drained observed more wound dressings. There were no difference between the groups was seen with respect to limb-swelling, venous thrombosis, or hospital stay.

Shen et al.(8) reported a prospective randomized study of postoperative drainage-clamping for the first 4 postoperative hours and not clamped. There was less blood loss in clamping group but there were no significant in postoperative range of motion, narcotics requirement, wound problems and deep vein thrombosis in both groups.

The persistent wound drainage was defined as the fluid drainage occurring for 4 consecutive days beyond postoperative day 5 and Weiss et al.(9) reported between 17% and 50% of an infection to TKA. Kim et al.(10) studied a prospective analysis of a 69 patients who had a primary simultaneous bilateral TKA and found the development of infection in two knees in which the drains were not used suggested suction drainage may reduce infection.

For the unicondylar knee replacement (UKR), Confalonieri et al.(11) reported a prospective study of drain usage in UKR resulted in no significant advantage in post-operative pain, range of motion and hospital stay.

The semi-rigid splint, cricket pad splint, was used postoperatively and Zenios et al.(12) reported a randomized prospective study of using and non using splint that no significant difference in the parameter of transfusion requirements. Horton et al.(13) concluded that there were no difference in wound complications, postoperative stay in using semi-rigid splint.

The position of the knee after operation effect the wound drainage. Ong et al.(14) reported a prospective randomize trial study and concluded that the knee elevation of the leg at 35° from the hip with the knee extended could reduced total blood loss by 25% .

Blood loss after TKA was calculated by Lotke et el.(15) They prospective randomize studied the cases of 121 cemented TKA which divided in 4 groups. In Group I, the tourniquet was inflated throughout the operative procedure, and was released after a compression dressing had been applied, splint was used for three days. In-group II, the tourniquet was inflated throughout the operation, but no splint was applied postoperatively, and continuous passive motion was started immediately in the recovery room. In Group III, the tourniquet was released intraoperatively , and hemostasis was achieved by cauterization. A compression dressing was applied and a splint was used for three days. In Group IV, the tourniquet was released intraoperatively, hemostatsis was established, and the tourniquet was reinflated. The compression dressing was applied, and continuous passive motion was started immediately in the recovery room. They reported the mean blood loss was 1518 milliliters(ml.). The calculated blood loss for Groups I,II,III averaged 1443 ml., while that for Group IV averaged 1793 ml. Loss in suction drainage correlated with total estimated blood loss and average 511 ml. Johnson(16) studied the oxygen tension at the wound margin daily after TKA and at various flexion angles. He found that oxygen tension decreased over the first three days after surgery and tended to increase. He found the oxygen tension to be inversely related to flexion angle, with a steep decline in oxygen tension with flexion above 40 degrees. He recommend a protocol of 3 days splint and starting continuous passive motion at 0 to 40 degrees and progress to 0 to 90 degrees by postoperative day 6.

Immobilization after TKA may effect the knee motion,Lau and Chiu(17) reported the study of sixty primary TKA in 43 Chinese patients which were randomized into 2 groups. The post operative continuous passive motion and knee immobilization in the first week. They found no difference in the knee range of motion between two groups after 4 weeks. There were some

bias in this work because they did not show the demographic data of the patients and the knee motion preoperatively.

There is concern about deep vein thrombosis and the sequelae of thromboembolic disease. Without either mechanical or pharmacological prophylaxis, asymptomatic deep venous thrombosis will develop after 40% to 60% of hip and knee arthroplasty(18). Proximal deep vein thrombosis will develop after 15% to 25% and fatal pulmonary embolism will develop after 0.5% to 2%. The prolong immobilization (more than 1 week) is one of the clinical risk factor for venous thromboembolic disease(18). Sudo et al(19) reported the incidence of deep vein thrombosis after hip and knee arthroplasties in Japanese patients which the demographic was simillary to Thai patients. They used ultrasonography before and 8,14 days after surgery. Those patients who had ultrasonographic finding of deep vein thrombosis were investigated for pulmonary embolism by ventilation-perfusion lung scan. The incidence of deep venous thrombosis were 9.1% and 4% after hip and knee arthroplasty respectively, the incidence of pulmonary embolism were 3.0% and 0%, respectively. There was no case of fatal pulmonary embolism.