Executive Summary

Despite the fact that venous thromboembolism (VTE) is the main complication of arthroplasty, there is no guideline for the prophylaxis of VTE after knee arthroplasty. In case of hip arthroplasty, guideline for the prophylaxis of VTE which was recently published in 2011 was mainly based on foreign literature due to the limited national resources. Therefore, this study aims to estimate the present condition of incidence of VTE after hip or knee arthroplasty and VTE prophylaxis, compare the effect of various drugs, and evaluate the VTE risk factors.

Using the Korean Health Insurance Review and Assessment Service (HIRA) database, arthroplasty patients from January 1st, 2007 to December 31st, 2011 were identified. Also, arthroplasty patients from January 2010 to December 2010 were defined as cohort to estimate the VTE after arthoplasty, compare prophylaxis, and evaluate risk factors. According to the database, there are 22,127 cases of hip arthroplasty and 52,882 cases of knee arthroplasty selected.

Total number of arthroplasty was 354,029 from 2007 to 2011 and increased steadily. Total number of hip arthroplasty was 107,348 and knee arthroplasty was 246,681. Total number of arthroplasty patients was 320,583, 63,751 in males and 256,832 in females. Total cost was 25,059 billion won and the amount of reimbursement was 81.4% of the total cost.

The tendency in type of hospitals was different between hip and knee arthroplasty. Hip arthroplasty was performed the most in General hospital (43.6~45%) while knee arthroplast was performed the most in hospital (50.0~59.9%).

The incidence of VTE, DVT, and PE within three months after hip arthroplasty was 853 (3.8%), 597 (2.7%), and 327 (1.5%), respectively. The incidence of VTE, DVT, and PE within three months after knee arthroplasty was 1,990 (3.8%), 1,699 (3.2%) and 355 (0.7%), respectively.

The previous history of VTE takes a central role in the incidence of VTE.

The incidence of VTE after hip arthroplasty was 5.7 times higher in patients with the previous history of VTE than in patients with no history of VTE. In tems of the typs of arthroplasty, there was a significant difference in revision elective arthroplsaty that the incidence of VTE was 16 times higher in patients with the previous history of VTE. Likewise, the incidence of VTE after knee arthroplasty was five times higher in patients with the previous history of VTE than in patients with no history of VTE. There was no significant difference among the types of arthroplasty. It is obvious that VTE occures more in groups with previous history of VTE in both types of arthroplasty. However, it is not statistically significant in the groups with previous history of VTE even with the higher incidence rate. Also, it is not statistically significant in some drug groups either, while the incidence was higher.

In case of hip arthroplasty, the risk factors of VTE in patients without prophylaxis were female, VTE history, stroke history and past history of anticoagulant. The risk factors of DVT were history of VTE, past history of anticoagulant and visit to ICU. The risk factors of PE were female, history of VTE, cancer, past history of anticoagulant and anesthesia time.

The risk factors of VTE in patients who had neither history of VTE nor prophylaxis were history of stroke and CVP insertion. The risk factors of DVT were visit to ICU and time of anesthesia. The risk factors of PE were female and CVP insertion.

In case of knee arthroplasty, the risk factors of VTE in patients without prophylaxis were VTE history and past history of anticoagulant. The risk factors of DVT were history of VTE, anticoagulant, type of anesthesia and volume of red blood cells (RBC) transfusion. The risk factors of PE were female, history of VTE, stroke, heart failure, past history of anticoagulant and volume of RBC transfusion.

The risk factors of VTE in patients who had neither history of VTE nor prophylaxis were varicose vein and volume of RBC transfusion. The risk factors of DVT was also volume of RBC transfusion. The risk factors of PE were history of heart failure, and volume of platelet transfusion.

In conclusion, it cannot be said that prophylaxis reduce the incidence of VTE from the comparison among various prophylaxis agents to prevent VTE. Also, the results of the present study does not demonstrate that prophylaxis is statistically significant in reducing the incidence of VTE compared to physical method since most patients not receiving prophylaxis are assumed to use physical methods such as compression stockings.