**Pocket hematoma in the patients that undergo CIED implantation that currently used VKA and NOAC**

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**Introduction**: The use of Cardiovascular Implantable Electronic Device (CIED) is increasing. Some of the patients undergoing CIED implantation have comorbidities that required to take anticoagulant and antiplatelet therapy. While the use of these medications provides cardiovascular benefits, the risk of bleeding increases. This study is aimed to evaluate the incidence and the impact of pocket hematoma in the patients undergoing CIED implantation who currently used oral anticoagulation.

**Methods**: From February 2018 through January 2019, we enrolled 74 patients that currently used anticoagulant and underwent CIED implantation at Ramathibodi hospital. Baseline characteristics, underlying disease, anticoagulation used, discontinuation of anticoagulation before CIED implantation, concurrent use of antiplatelets, procedure type and the presence of pocket hematoma were collected from OPD card, electronic medical record, and procedure note. Association of pocket hematoma and oral anticoagulants were performed.

**Result**: A total of 74 CIED implantation patients, 37 patients use vitamin K antagonist (VKA) and 37 patients use novel anticoagulation (NOAC). The baseline characteristics of the patients were age 31-92 yrs. (72.14± 11.82 yrs.), male 38 patients (51.4%). The most common type of device implantation was pacemaker (N=50, 67.6%), followed by CRT (N=15, 20.3%) and ICD (N=9, 12.2%). The majority of the implantation was new implantation (N=59, 79.7%). The incidence of pocket hematoma was 10.8%. Only one patient (1.4%) was required drug interruption during the follow-up period. None needed surgical intervention and none developed pocket infection at 3 months. The incidence of pocket hematoma was not statistically different between interrupted and uninterrupted VKA and NOAC groups (22.2%, 7.1%, and 10.8% respectively, P = 0.448).

**Conclusion**: The incidence of pocket hematoma after CIED implantation among the patients using VKA or NOAC was approximately 10%. Very few patients required drug interruption and none developed a pocket infection.