



ASSESSMENT OF PLATELET FUNCTION AFTER LET ATRIAL APPENDAGE CLOSURE IN A PROSPECTIVE COHORT

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Background:

Left atrial appendage closure (LAAC) has shown to be an effective therapeutic option to decrease the risk of embolic stroke in patients with atrial fibrillation contraindicated to oral anticoagulation (OAC). However, device related thrombus (DRT) has been described during follow up and is related to adverse thrombo-embolic events [1]. The relation between DRT and platelet function has not been evaluated yet. We aimed to assess platelet function and antiplatelet observance after LAAC and its link to DRT and post implantation stroke.

Method:

We consecutively included patients with non-valvular atrial fibrillation and a contraindication for OAC who underwent LAAC in our institution from January to December 2019. A single antiplatelet therapy (aspirin 160mg) was prescribed after the procedure whatever the type of device implanted (Amulet or Watchman). Follow up consisted in a cardiac computed tomography or trans-esophageal echography (TEE) at 6 months to assess the device position, presence of residual patency and DRT, alongside clinical evaluation. Platelet functional tests were performed at first day and 30 days after procedure through light transmission aggregometry using the APACT-4004 [2]. We then compare the biological data from the two groups: DRT and no DRT using univariate analysis. Clinical follow up was extended to one year after procedure.

Results:

A total of 60 patients were included (table 1) with a mean age of 75,8 +/- 7,7. 80% of male with a mean CHA2DS2VASc of 4,6 +/- 1,1 a mean HASBLED of 2,9 +/- 1 and a mean LVEF of 55,7 % +/- 6,8. Biological data were as follows: mean platelet count of 196,6 +/- 59,5, mean D-Dimer of 1471. ADP 5 µMol of 69,8 +/- 12,7 and every patient had a normal test (defined above 57%). Arachidonic acid-stimulated platelet tests (AAPT) were at 35,5 +/- 29,7 the first day and at 21,3 +/- 23 after one month of treatment. During follow up we reported 2 DRT, 5 ischemic strokes and one non cardiac death. 8 patients exhibited aspirin inobservance or resistance defined as



an AAPT over 20%. Among these patients one experienced an ischemic stroke, and no DRT were diagnosed. When comparing the two groups regarding the platelet test and biological data no significant statistical difference were present.

Discussion:

This preliminary work report aspirin resistance or inobservance in 13% of our patients (8/60). Platelet function assessed by ADP was normal in our cohort. Previous study reported no difference in platelet function in elderly people regarding arterial events [3]. The presence of DRT is not more prevalent when aspirin resistance or inobservance is present. DRT is often described during follow up after LAAC (around 5%) and is not fully understand. Even though thrombus formation cannot be solely explained by platelet dysfunction, hypercoagulability disorders (prothrombin gene mutation, protein C/S deficiency antibody syndrome) were recently describe as a major risk factor for DRT[4].

Conclusion:

In this cohort, patients exhibited normal platelet function and aspirin was regularly taken as reported by the arachidonic acid stimulated platelet test. It seems that DRT formation and ischemic event cannot be explained by the sole inobservance of post procedural treatment or platelet dysfunction.

	N= 60
Age (years)	75,8 +/- 7,7
Sex (male)	80%
Height (cm)	169,6 +/- 8,5
Weight (kg)	79,3 +/- 18,4
CHA ₂ DS ₂ VASc	4,6 +/- 1,1
HasBled	2,9 +/- 1
Paroxysmal AF	45%
ICB	66,7%
GIB	20 %
LVEF %	55,7 +/- 6,8
ACP	41,7 %
Watchman FLX	58,3 %
Mean size of device in mm	25,7 +/- 4,4
White blood cell (G/L)	10 +/- 8,7
Hemoglobin (g/dl)	12,3 +/- 2,2
Platelet count (G/L)	193,6 +/- 59,5
D-Dimer (ng/mL)	1471,52
fibrinogen	4,79 +/- 1,02
FVIII (%)	176,24 +/- 42,5
ADP 5 µmol (%)	69,8 +/- 12,7
Arachidonic acid at D1 (%)	35,5 +/- 29,7



Arachidonic acid at D30 (%)	21,3 +/- 23
Patients with AA < 20% at D30	8
DRT	2
Ischemic stroke	5
Death	1

Table 1: Characteristics of patients: ICB: intracranial bleeding, GIB: gastrointestinal bleeding, DRT: device related thrombus D1: day one D30: day thirty of follow up.

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