ABSTRACT

ANALYSIS OF DIFFERENCES OF SERUM THROMBOXANE B2 LEVEL AFTER TAKING ASETOSAL IN ACUTE THROMBOTIC STROKE WITH DIABETES MELLITUS AND NON DIABETES MELLITUS
(Study at Neurology Department of Dr. Soetomo Teaching Hospital Surabaya)

Background: The underlying pathophysiology of thrombotic stroke is a formation of thrombus in cerebrovascular, causing decrease in blood flow to certain cerebral region and thus manifested as neurological deficit. Acetosal as a secondary prevention therapy for thrombotic stroke, exert its pharmacological effect by inhibiting COX-1 enzyme so it decrease Thromboxane A_2 (TxA_2) synthesis, a potent agonist for platelet activation. Diabetes Mellitus known as one of the major risk factor for thrombotic stroke, shows a platelet hyperactivity. It is thought that the higher rate of reccurence in thrombotic stroke is due to platelet hyperactivity. To analyze the pharmacological effect of ASA in thrombotic stroke, especially in diabetic patients, we measure the level of thromboxane A_2 (TxA_2) through the measurement of its stabile Metabolite, TxB_2.
Objectives: To analyze the difference of serum TxB_2 levels in acute thrombotic stroke patients with diabetes mellitus (DM) and non DM.
Method: Data were collected from August – October 2016. Venous blood sample were obtained to extract serum TxB_2 level before and after 5-7 days taking asetosal 100 mg. Protocol of this study was approved by Ethical Committee of Dr.Soetomo Teaching Hospital Surabaya. The informed consents must be signed as a proof of participation. The measured data of serum TxB_2 were analyzed using paired t-test to compare parametric data within group and independent t-test to compare parametric data between DM and non DM group.
Result: Total 27 inpatients were participated in this study divided into 15 and 12 patients in DM and non DM group. Sixty percent (60%) and 67% subject in diabetic and non diabetic group were men. Ages and sex between two groups were not significantly different (p >0.05). Serum TxB_2 before taking ASA (pre ASA) in diabetic and non diabetic group was 0.56 – 55.77 ng/mL and 4.24 – 60.31 ng/mL with mean value was 16.43 ± 16.08 ng/mL and 27.36 ± 21.04 ng/mL respectively. After taking ASA 5-7 days (post ASA), we measure serum TxB_2 level in diabetic and non diabetic group was 0.90 – 6.58 ng/mL and 0.95 – 16.23 ng/mL with mean value was 2.93 ± 1.83 ng/mL and 5.36 ± 4.06 ng/mL respectively. Serum TxB_2 level after taking ASA 100 mg decrease significantly in both group (p = 0.006 in diabetic group and p = 0.005 in non diabetic group). Mean reduction of serum TxB_2 level in diabetic (13.49 ± 15.98 ng/mL) is less than non diabetic group (22.00 ± 21.65 ng/mL). Statictical analysis shows that the mean reduction of serum TxB_2 level between two groups were not significantly different (p > 0.05).
Conclusion: ASA 100 mg could decrease serum TxB_2 level significantly in both Diabetic and non Diabetic group. Mean reduction of serum TxB_2 level in non diabetic group was greater than in diabetic group although it is not significantly different.

Keyword: Thrombotic Stroke, Acetosal, platelet activation, Diabetes Mellitus, Thromboxane B_2, TxB_2, Thromboxane A_2, TxA_2.