Ischemic stroke is the leading cause of disability in adults. During ischemic stroke, oxidative stress occurs and causes neuron cell death through apoptosis pathway. Green tea with the active compound EGCG has strong anti-oxidant properties that will reduce oxidative stress on neuron cells during ischemic event.

To knows the effect of green tea with the active ingredient EGCG on the inhibition of apoptosis in the MCAO model.

Male Rattus Norvegicus 4 months years old with body weight of 200-275 grams was carried out by MCAO model and divided into 5 groups and the treatment was carried out for 7 days. Before being sacrificed, the subject had 1 cc of blood drawn for HMGB1 examination using ELISA, and after being sacrificed, the brain tissue specimen was taken to examined Caspase-3 and BCL-3 using Immunohistochemistry methods.

There was no significant difference in HMGB1 results for the treatment group compared to the control group (P1: 384,20±231,72 (p = 0,553); P2: 379,11±268,4 (p = 0,526); P3: 284, 87±276.19 (p = 0.140); P4: 435,32±279.95 (p = 0.912). There is significant increasing in BCL-2 expression between treatment group compared to the control group (P1: 2.58±0.51 (p = 0.04); P2: 3.36±0.50 (p <0.001); P3: 4.00±0.42 (p <0.001); P4: 3.60±0.52 (p <0.001). There was a significant difference in Caspase-3 expression compared to the control in the P3 group (P1: 4.33±0.49 (p = 0.652); P2: 4.09±0.30 (p = 0.136); P3: 3.58±0.51 (p = 0.01); P4: 3.89±0.42 (p = 0.063). There are no correlation between HMGB1 and Caspase-3 (r=-0.063; p=0,613) or BCL-2 (r=-0,106; p=0,396). There is significant negative correlation between Caspase-3 and BCL-2 (r = -0,459; p = 0,000).

Our study shows that there is no different HMGB-1 level between intervention group and control group in another way it shows that neither green tea extract nor EGCG as it active compound did not influence HMGB-1 level, that because of excessive secretion of EGCG during acute stroke. Our study show that EGCG can inhibit apoptosis through inhibition of Caspase-3 and stimulation of anti apoptosis protein BCL-2.

Green tea with the active ingredient EGCG can inhibit neuron cell death through the apoptotic pathway not through the activation of HMGB1.