Annona muricata associated with reduce macrophage phagocytic index of swiss mice during cerebral malaria phase

Kis Djamiatun[1,2]*, Husen Mohamed Albakoush[2], Tri Nur Kristina[2], Djoko Nugroho[4]

Medical Faculty Diponegoro University

Introduction

- Cerebral malaria (CM) is mostly fatal case.

- Anti-plasmodial and immunomodulatory effects of *Annona muricata*-leaf extract (AME) might avoid CM.

- Immunomodulatory treatment which increased macrophage-phagocytic index (PI) and macrophage nitric oxide (NO) production, related with the increase survival of experimental (E)CM.

- The objectives were to determine whether ethanolic-AME influenced PI, NO-production, and correlate them with parasitemia during CM-phase.

Material and Method

- A post-test only control group design-study was done.

- Thirty swiss-mice were randomly divided in 6 groups, PbA-inoculated and healthy mice grouped in C(+) and C(-); healthy mice treated with *A. muricata* 100 and 150 mg/Kg BW/day named as X1 and X2; PbA-inoculated and treated either dose mentioned above grouped as X3 and X4.

- Light microscope was used to observe parasitemia and PI. NO was measured using elisa. One-Way Anova and Benfereoni-post-hoc test were performed for normally-distributed data. Pearson test was done for analyzing correlation between variables.

Results

- Parasitemia-percentage and NO production were not different among PbA-inoculated groups (p=0.916 and p=1.000).

- NO produced in each of C(+), X3 and X4 group was significantly lower than C(-) (p<0.0001).

- PI of X3 was significantly lower than C(-) group (p=0.022).

- Activated-macrophage NO production correlated strongly with parasitemia-percentage in X3 group (r = 0.852, p = 0.015).

Conclusion

- AME treatment at any dose studied might not improve NO-production and decrease parasitemia-percentage of swiss mice during CM phase.

- Dose of 100 mg/kg BW/day AME might reduce PI below normal during CM-phase.

- This dose might contribute in a strong correlation between NO production and parasitemia percentage.