Altered renal immune complexes deposition in female BWF1 lupus mice following Plasmodium chabaudi infection

Mostafa A. Abdel-Maksoud, Fathy A. Abdel-Ghaffar, Azza El-Amir, Gamal Badr, Saleh Al-Quraishy.

Abstract:

Systemic lupus erythematosus (SLE) is a prototypic autoimmune disease that has a mysterious relationship with malaria infection. The current study was designated to compare between the effect of the live and the gamma irradiated Plasmodium chabaudi infection on BWF1 lupus murine model. A total of 30 female BWF1 mice were randomly divided into three groups (10 mice/group) as follows: group (I) lupus group (lupus non infected); group (II) live malaria infected group (lupus + live malaria infection); and group (III) irradiated malaria-infected group (lupus + gamma irradiated malaria infection). Live P. chabaudi infection was accompanied with a decrease in survival rate and food consumption in comparison to the control group of mice while gamma irradiated P. chabaudi -infection was unable to do this effect. Additionally, live P. chabaudi infection was accompanied with an increased level of proteinuria and increased rate of immune complexes deposition in kidney. Moreover, infection with live, but not gamma -irradiated P. chabaudi was accompanied with an increase in nitric oxide (NO), hydrogen peroxide (H2O2), and Malondialdehyde (MDA) levels in plasma of lupus mice. The levels of both total cholesterol and triglycerides in plasma of lupus mice after live P. chabaudi infection were obviously decreased in comparison to the control group. On the other hand, gamma-irradiated P. chabaudi infection was resembling the control group. Our data revealed that infection of lupus mice with live but not gamma-irradiated P. chabaudi has several histological and biochemical effects.

Keywords:

Lipid peroxidation; Oxidative stress; Plasmodium chabaudi; Redox imbalance; SLE

Published In:

Saudi Journal of Biological Sciences , 25(8) , 1609- 1616