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**Fcγ receptor polymorphisms in systemic lupus erythematosus patients suffering from chronic periodontitis: Case control study**

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**Background:** Leukocyte Fcγ receptors for immunoglobulin G (FcγRs) play a major role in the handling of immune complexes and pathogens in Systemic Lupus Erythematosus (SLE) and periodontitis. Both diseases have been shown to be partly influenced by genetic components including FcγR genotype. The aim of the present study was therefore to evaluate whether FcγR gene polymorphisms are associated with periodontitis risk in Egyptian SLE patients.

**Methods:** The study subjects consisted of 100 SLE patients with periodontitis (SLE+P), 100 SLE patients without periodontitis (SLE), 100 healthy subjects with periodontitis (P) and 100 healthy subjects without periodontitis (H), who were all unrelated Egyptian non smokers. Genomic DNA was isolated from peripheral blood and FcγR genotypes for 3 biallelic polymorphisms (FcγRIIa-R131/H131, FcγRIIIa-158V/158F and FcγRIIIb-NA1/NA2) were determined by PCR-RFLP and allele specific polymerase chain reactions.

**Results:** The SLE+P group was found to have more levels of periodontal destruction than the P group ( $P < 0.001$ ). A significant over representation of the FcγRIIa-R131 allele was found in the SLE+P group compared to the H group (SLE+P versus H:  $P < 0.001$ , odds ratio, OR=10.553, 95% confidence interval, 95% CI=6.33-17.594). The FcγRIIa-R131 allele was also found to be overrepresented in the SLE+P group compared to the SLE group (SLE+P versus SLE:  $P$ -value $<0.001$ , OR=4.317, 95% CI=2.818-6.613). The FcγRIIa-R131 allele was also found to be overrepresented in the SLE+P group compared to the P group (SLE+P versus P,  $P$ -value=0.001, OR =1.987, 95% CI=1.335-2.958). The frequencies of FcγRIIIa alleles among the subject groups showed SLE+Periodontitis group to have statistically significantly higher percentage of (F) allele than control group (SLE+Periodontitis vs. Control, VxF,  $P$ -value=0.001, OR=2.154, 95% CI=1.370-3.385). Same results were obtained when SLE+Periodontitis group was compared to periodontitis group (SLE+Periodontitis vs. periodontitis, VVxFF,  $P$  value $<0.001$ , VxF,  $P$  value $<0.001$ , OR=2.667, 95% CI=1.705-4.171). Same results were obtained when SLE+Periodontitis group was compared to SLE group (SLE+Periodontitis vs. SLE, VVxFF,  $P$  value=0.002). Same results were also obtained when SLE group was compared to control group (VVxFF,  $P$  value=0.030, VxF,  $P$  value=0.029, OR=1.615, 95% CI=1.048-2.489). Same results were also obtained when periodontitis group was compared to control group (VVxFF,  $P$  value $<0.001$ ).

**Conclusion:** These results show the FcγRIIa-R131, FcγRIIIa-158F alleles to be associated with periodontitis risk in Egyptian SLE patients.