Assessment of the relationship of inflammatory factors of peripheral blood leukocytes with Age-related macular degeneration (AMD), 2022-2023

ABSTRACT

Background: One of the most important diseases of the retina is age-related macular degeneration (AMD), which is the most common irreversible cause of low vision in developing countries. The difference in the prevalence of AMD in different races and the contradictory results of studies in the field of this disease have raised the importance of present study.

Aim: This study was conducted for investigating the relationship between peripheral blood inflammatory factors and AMD disease.

Materials and Methods: This is a cross-sectional study that was conducted on 204 participants. Participants were divided into four equal groups of 51 people. Three case groups (mild, moderate or severe AMD disease) and one control group (healthy eye) were selected. Census Sampling was done. The inclusion criteria for the case group are a healthy person in terms of recent infectious and inflammatory disease and other eye diseases, and the exclusion criteria is any other eye disease that causes vision loss or involves the retina. The control group was healthy people without infectious or inflammatory eye disease. Then blood inflammatory factors (lymphocyte, monocyte, neutrophil, neutrophil/lymphocyte ratio and CRP) were tested and the data was entered into the study checklist. For data analysis, SPSS18 software was used, and to investigate the relationship between inflammatory factors and AMD disease, analysis of variance and ANOVA tests, Fisher's exact test, and ordinal logistic regression were used, and $P<0.05$ was considered significant.

Results: 51% of the participants were women and their age was between 47 and 89 years (62.2 ± 8). Based on the multiple analysis of the ordinal logistic regression model, age had a statistically significant positive association with AMD severity ($P=0.038$ and $OR=1.034$). The findings based on the ANOVA test showed that there was a significant relationship between the variable of neutrophil count and the severity of AMD disease ($P<0.001$) and the more the severity of the disease increased, the more the number of neutrophils decreased. The mean and standard deviation of the number of neutrophils in mild, moderate and severe forms of AMD were 3849 ± 800, 3702 ± 734 and 3342 ± 823, respectively. No statistically significant relationship was found between the number of lymphocytes, monocytes, the neutrophils to lymphocytes ratio and CRP with AMD disease.

Conclusion: Considering the statistically significant relationship between the severity of AMD disease and the number of neutrophils in the peripheral blood of study participants, this factor seems to help in the diagnosis and treatment of AMD disease.

Key words: lymphocyte, monocyte, neutrophil, NLR, CRP, AMD