EVALUATION OF SERUM URIC ACID LEVELS IN PATIENTS SUFFERING FROM PSORIASIS: A HOSPITAL-BASED CROSS-SECTIONAL STUDY

Dr. Anupama B. Patne1, Dr. Ashwini M. Jantikar2*

1. Associate professor, 2. Assistant professor, Department of Biochemistry, American International Institute of Medical Sciences, Udaipur, Rajasthan, India

*Corresponding author – Dr. Ashwini M. Jantikar

Email id – ashwinimj@gmail.com

Received: 18/12/2019 Revised:05/02/2020 Accepted: 12/02/2020

ABSTRACT

Background: Hyperuricemia is reported in psoriasis which may predispose the patients to arthritis, cardiovascular disease, and metabolic syndrome. This hospital-based cross-sectional study was planned to determine the serum uric acid levels in individuals suffering from psoriasis. Materials and methods- A total of 100 subjects were included in the study comprising 50 active cases of psoriasis as a test group and 50 age and sex-matched non-psoriatic individuals as a control group. Serum uric acid level, serum creatinine, serum triglycerides, and serum cholesterol levels of these two groups were determined and results were compared. Results- There was no significant difference observed between levels of serum creatinine, triglycerides, and cholesterol between the test and control group, a significant difference in serum uric acid levels was observed. It was noted that the serum uric acid levels were higher in psoriatic individuals. Conclusion- The increased serum uric acid level is associated with other complications like gout, metabolic syndrome, and cardiovascular complications so it can be suggested that this parameter should be closely monitored in active cases of psoriasis.

Keywords: Hyperuricemia, psoriasis, serum uric acid, serum creatinine, serum triglycerides, serum cholesterol.

INTRODUCTION

Psoriasis is a chronic immune-mediated skin disease affecting nearly 2-3% of the world’s population (1). Though the disease is a result of the unwanted immune response to self-antigens, environmental and genetic components have their significant role in its expression and progression. Clinical manifestations include erythematous, indurated, scaly plaques on the skin with or without the involvement of the nails and joints. Exaggerated and disordered epidermal cell proliferation and keratinization are the characteristic features (2).

Uric acid is a product of the metabolic breakdown of purine nucleotides. Elevated levels of serum uric acid are associated with metabolic syndrome, hypertension, and cardiovascular disease. (3,4,5) Hyperuricemia is reported in psoriasis (6,7) which may predispose the patients to arthritis, cardiovascular disease, and metabolic syndrome. This is a hospital-based cross-sectional study was planned to determine the serum uric acid levels in individuals suffering from psoriasis.

MATERIALS AND METHODS

The hospital-based cross-sectional study was conducted at Bhopal City, India between two years from June 2016 to July 2018. A total of 100 subjects
attending the dermatology outdoor and coming to the biochemistry department for investigations were included in the study comprising of 50 active cases of psoriasis as test group and 50 age and sex-matched non-psoriatic individuals as a control group.

Individuals using medications known to affect the serum uric acid levels were excluded from the study. Individuals having arthritis, gout, any other chronic inflammatory disease, tuberculosis, pregnancy, or malignancies were also excluded from the study. The biochemical profile including serum uric acid, serum creatinine, serum triglycerides, and serum cholesterol levels of these participants was determined.

After obtaining the informed consent from the participants, 5 ml of blood was drawn. Detailed clinical history was also noted. Serum uric acid levels, serum cholesterol, serum triglycerides, and serum creatinine were estimated by using a fully automated biochemical analyzer after proper calibration and control. Data were presented as mean±SD and students t-test was applied to compare the results of two groups.

**RESULTS**

The present study included a test group of 50 psoriatic individuals (28 males, 22 females) age ranging from 18 to 70 years with a mean age of 48.1±10.3 years. The control group of 50 non-psoriatic individuals matched for age (ranged from 19 to 62 years with a mean age of 48.3±9.17) and sex (28 males, 22 females). Maximum cases of psoriasis were seen in 51-60 years of age group (Table 1).

<table>
<thead>
<tr>
<th>Age group</th>
<th>cases of psoriasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>below 20</td>
<td>1</td>
</tr>
<tr>
<td>21-30</td>
<td>2</td>
</tr>
<tr>
<td>31-40</td>
<td>9</td>
</tr>
<tr>
<td>41-50</td>
<td>14</td>
</tr>
<tr>
<td>51-60</td>
<td>20</td>
</tr>
<tr>
<td>61-70</td>
<td>4</td>
</tr>
</tbody>
</table>

These individuals were tested for serum uric acid, serum uric acid level, creatinine, triglycerides, and cholesterol. The mean serum uric acid levels in psoriatic patients were 5.5±0.71 mg/dl while in control 4.7±1.07 mg/dl was observed.

The mean value of serum creatinine seen in the test group was 0.9±0.17 and 0.94±0.14 in the control group. The sr. triglycerides and sr. cholesterol levels in the test group were 162±53.7 and 172.6±31.85 while 163.3 ± 45.7 and 171.5 ± 29.4 in the control group respectively (Table 2).

**DISCUSSION**

The increased uric acid level is reported to be associated with hypertension, metabolic syndrome, and cardiovascular diseases. (3,4,5) Many studies have been conducted on serum uric acid levels in psoriatic individuals. Agrawatt et al. (8), Brenner et al. (9) and Bruce et al. (10), and reported no significant correlation between increased serum uric acid levels and severity of psoriasis, suggesting that the increased epidermal turn over may not play a role in psoriatic hyperuricemia. On the other hand, Isha et al. (11), Kwon et al. (12), and Gisondi et al. (13) reported a significant rise in serum uric acid levels in psoriatic individuals as compared to healthy
individuals. In the present study, the biochemical profile of a group of 50 psoriatic individuals was determined and compared with a group of non-psoriatic individuals. A significant difference in serum uric acid levels was observed. It was noted that the serum uric acid levels were higher in psoriatic individuals. The results are in agreement with the studies in support of a positive co-relation between psoriasis and increased serum uric acid levels suggesting that increased epidermal cell turnover may result in increased purine catabolism and cause of the raised serum uric acid reported by Kwon et al and Reich. (12,14) However, there was no significant difference observed between levels of serum creatinine, triglycerides, and cholesterol between the psoriatic and the healthy study group. Similar results were reported by Gisondi et al. (13)

Kwon et al.,(12) proposed that increased epidermal cell turnover may play a role in this rise. However, the role of uric acid in the severity of psoriasis is still unclear. Studies suggest that psoriasis itself is a contributing factor in high serum uric acid levels. (13,15,16)

CONCLUSION

The observations in the current study are in agreement with the previous studies that the serum uric acid levels may be found increased in psoriasis though the role of Serum uric acid level in severity is still to be studied. However, the increased Serum uric acid level is also associated with other complications like gout, metabolic syndrome, and cardiovascular complications so it can be suggested that this parameter should be closely monitored in active cases of psoriasis.

REFERENCES
