Serum Levels of Interleukin 17 in Patients with Human Papilloma Virus Infection

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Abstract

Warts (verrucas) are an extremely common, benign, and usually self-limited skin disease. Infection of epidermal cells with the human papillomavirus (HPV) results in cell proliferation and a thickened, warty papule on the skin. There are over 100 different types of HPV. Moreover, 40 different types of HPV can infect the skin covering the sex organs, cervix and opening of the anus [1].

Interleukin 17 (IL-17) is a pro-inflammatory cytokine involved in the control of many different disorders that include autoimmune, oncogenic, and many infectious diseases. T cells that produce IL-17 arise as a specific population of CD4-positive T cells, which are called T helper 17 (Th17) cells that are distinct from the classic Th1 and Th2 cells [2].

The aim of this study is to evaluate the serum level of Interleukin 17 in patients with verruca, and to correlate their levels with different demographic and clinical data.

2. Patients and methods

This prospective case-control study, included 30 patients suffering from HPV infection, in addition, 15 apparently healthy, age and sex matched individuals included as a control group (Group 2). All patients were selected from outpatient clinic of Dermatology and Andrology department of Benha University Hospital from Jan 2020 to July 2020. Informed consents were obtained from all participants. The study was approved by the local ethics committee on research involving human subjects, Faculty of Medicine, Benha University. Results and conclusion: it is concluded that IL-17 levels are lower in verruca patients than controls.

Keywords: Interleukin 17, Papilloma, Virus.

1. Introduction

Warts (verrucas) are an extremely common, benign, and usually self-limited skin disease. Infection of epidermal cells with the human papillomavirus (HPV) results in cell proliferation and a thickened, warty papule on the skin. There are over 100 different types of HPV. More than 40 different types of HPV can infect the skin covering the sex organs, cervix and opening of the anus [1].

Interleukin 17 (IL-17) is a pro-inflammatory cytokine involved in the control of many different disorders that include autoimmune, oncogenic, and many infectious diseases. T cells that produce IL-17 arise as a specific population of CD4-positive T cells, which are called T helper 17 (Th17) cells that are distinct from the classic Th1 and Th2 cells [2].

The aim of this study was to evaluate serum levels of Interleukin 17 in patients with verruca, correlate their levels with different demographic and clinical data. Method: This present study included: patient group (1) included 30 verruca patients. In addition, 15 apparently healthy, age and sex matched individuals included as a control group (Group 2). All patients were selected from outpatient clinic of Dermatology and Andrology department of Benha University Hospital from Jan 2020 to July 2020. Informed consents were obtained from all participants. The study was approved by the local ethics committee on research involving human subjects, Faculty of Medicine, Benha University. Results and conclusion: it is concluded that IL-17 levels are lower in verruca patients than controls.

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2.3. Statistical Analysis

The collected data were coded, processed and analyzed using the SPSS (Statistical Package for Social Sciences) version 22 for Windows® (IBM SPSS Inc, Chicago, IL, USA). Qualitative data were represented as frequencies and relative percentages. Chi square test (χ²) to calculate difference between two or more groups of qualitative variables. Quantitative data were expressed as mean ± SD (Standard deviation). Independent samples t-test was used to compare between two independent groups of normally distributed variables (parametric data). Receiver operator characteristic (ROC) curve was tested to calculate the diagnostic ability of quantitative variable in prediction of categorical outcome. P value < 0.05 was considered significant.

3. Results

The present study included 30 patients with warts and 15 healthy control subjects. The mean age in patients’ group was 30 ± 3.2 years. They were 15 males (50%) and 15 females (50%), while the mean age in the control group was 29.7 ± 3.5 years, they were 10 males (66.6%) and 5 females (33.4%). There was insignificant difference between patients and controls in age and gender (p > 0.05 for each).

The median disease duration was 6.8 months, it ranged from 3 to 12 months. The median number of warts per case was 3, with a range between 2 to 8 warts. Many sites were affected, most common affected sites were hand (60%), followed by foot (25%), face (9%), and genital (6%).
There was no statistically significant decrease in serum level of IL17 in patients when compared to control group. (385.19 vs 401.5 respectively).

4. Discussion

Results of the present study showed that cases group showed no statistically significant lower IL17 levels when compared to control group.

This is similar to the results of Metwally et al. [3] who showed a significant decrease in serum IL-17 levels in wart patients.

Table (1) Correlations between serum level of IL17 with age, BMI, disease duration and number of warts in cases group.

<table>
<thead>
<tr>
<th></th>
<th>rs</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.301</td>
<td>0.084</td>
</tr>
<tr>
<td>BMI</td>
<td>-0.157</td>
<td>0.06</td>
</tr>
<tr>
<td>Disease duration</td>
<td>-0.605</td>
<td>0.11</td>
</tr>
<tr>
<td>Number</td>
<td>-0.924</td>
<td>0.46</td>
</tr>
</tbody>
</table>

rs, correlation coefficient.

5. Conclusion

From the results of present study, it is concluded that IL17 serum level showed no statistically significant correlation with disease duration, number of warts, age and BMI of patients Table (1).

References


