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Study the Level of IL-6 in Vitiligo Patients Having Progression After Being COVID Positive within One Month and Compare it to the Level of Patients Who Have Progression with COVID Negative

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Abstract: ***Background: Vitiligo is a common, acquired, discoloration of the skin, characterized by well circumscribed, ivory or chalky white macules. Etio-pathogenesis of vitiligo is multifactorial and polygenic consisting of genetic, immunological and environmental factors. During the recent pandemic of Covid-19 it was observed that Vitiligo in patients aggravated possibly because there is cytokine storm in covid patients mainly of interleukin-6. Aims and objective: To find out the level of IL6 in a known patient of vitiligo with history of aggravation and seropositive for covid -19. To find out the level of IL 6 in known patient of vitiligo with history of aggravation during covid 19 but serologically negative. Material and Methodology: Hospital based observational study. Inclusion criteria patients with progressive vitiligo after being Covid positive in a month and patient with progressive vitiligo who are Covid negative and patients aging 18-65. Discussion: Analysis was conducted using t-test for continuous variables demonstrating clear correlation between IL-6 elevation and COVID-19 positivity in vitiligo patients. This data supports the hypothesis that COVID-19 may influence autoimmune conditions like vitiligo through inflammatory pathways involving IL-6.***

Keywords: Vitiligo, IL-6, COVID-19, autoimmune disease, cytokines, inflammation

1. Introduction

Vitiligo is a common, acquired, discoloration of the skin, characterized by well circumscribed, ivory or chalky white macules. Etio-pathogenesis of vitiligo is multifactorial and polygenic consisting of genetic, immunological and environmental factors. During the recent pandemic of Covid-19 it was observed that vitiligo in patients aggravated possibly because there is cytokine storm in covid patients mainly of interleukin -6. IL-6 along with other cytokines released by Th-17 cells in vitiligo skin causes shrinking in melanocytes resulting in decreased melanin production. Vitiligo is characterized by depigmentation of the skin resulting from the destruction of melanocytes. Increasing evidence implicates immune dysregulation and cytokine imbalances, such as elevated IL-6, in its pathogenesis. Given the inflammatory nature of COVID-19, the potential of the virus to exacerbate autoimmune disorders warrants investigation. This study aims to assess the role of IL-6 in vitiligo progression among patients with and without recent COVID-19 infection.

2. Methods

A hospital-based observational study was conducted. Twenty vitiligo patients aged 18–65 with recent disease progression were enrolled and stratified based on recent COVID-19 serological status. IL-6 levels were quantified and compared between COVID-positive and COVID-negative groups.

3. Results

The mean IL-6 level in the COVID-positive group was **1,020.31 pg/ml**, significantly higher than the **159.08 pg/ml** observed in the COVID-negative group ($p < 0.05$). A statistically significant elevation in IL-6 was evident in patients who tested positive for COVID-19 within one month of vitiligo progression.

Table 1: Comparison of IL-6 Levels in Vitiligo Patients by COVID-19 Status

Group	Number of Patients (n)	Mean IL-6 Level (pg/ml)
COVID-19 Positive	10	1020.31
COVID-19 Negative	10	159.08

Table 2: Summary of Findings

Parameter	Observation
IL-6 elevation in COVID positive	Significantly elevated compared to COVID-negative group
Statistical test used	Unpaired t-test
Result significance	Statistically significant ($p < 0.05$)
Clinical implication	COVID-19 may trigger autoimmune activity contributing to vitiligo progression

4. Conclusion

Recent COVID-19 infection may act as a trigger for vitiligo progression via elevated IL-6 levels. These findings link between viral infection and autoimmune activation in

vitiligo. In COVID and vitiligo patients, the mean is 1,020.312 pg/ml - They show an increase in level of IL-6. In non COVID-19 and vitiligo patient mean is 159.085 which show the patient has increased level of IL-6 also. A statistically significant difference in IL-6 was noted between the two groups. COVID-19 appears to act as a trigger for increased IL-6 possibly aggravating vitiligo progression.

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