



Original article

# Serum prolactin levels in dermatological diseases: A case–control study

Nadia Abdalhafid Elsherif<sup>a,\*</sup>, Abdalla I. El-Sherif<sup>a</sup>, Salwa A. El-Dibany<sup>b</sup>

<sup>a</sup> Dermatology Department, Faculty of Medicine, Benghazi University, Benghazi, Libya  
<sup>b</sup> Dermatology Department, Faculty of Medicine, Omer El-Muktar University, Elbida, Libya

Received 19 January 2015; accepted 13 March 2015  
Available online 13 April 2015

## Abstract

**Background:** Recent lines of evidence suggest that prolactin (PRL) as a neurohormone may play a role in the activity of psoriasis and some other immune-mediated diseases. Our aim was to evaluate the correlation between serum PRL levels and severity of psoriasis, vitiligo and alopecia areata.

**Patients and methods:** We performed a case–control study on 100 subjects: 75 patients; suffering from psoriasis, vitiligo and alopecia areata; 25 patients in each group and 25 age- and sex-matched healthy controls.

**Results:** Serum prolactin levels were significantly high in all three dermatological diseases in comparison with the control group ( $P = 0.000$ ). The mean  $\pm$  SD of the serum prolactin levels was  $21.8 \pm 11.5$  ng/ml,  $16.9 \pm 6.8$  ng/ml, and  $16.6 \pm 8.0$  ng/ml in patients with alopecia areata, psoriasis and vitiligo respectively. Moreover, the serum prolactin levels in patients with alopecia areata and psoriasis were significantly correlated with disease severity ( $P < 0.05$ ), however no statistically significant correlation was noted between vitiligo severity and serum prolactin levels ( $P > 0.05$ ).

**Conclusions:** Prolactin may play a role in the pathogenesis of alopecia areata, psoriasis, and vitiligo; and may serve as a biological marker of disease activity in patients with psoriasis and alopecia areata.

© 2015 The Authors. Production and hosting by Elsevier B.V. on behalf of King Saud University. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

**Keywords:** Prolactin; Psoriasis; Vitiligo; Alopecia areata

## 1. Introduction

Prolactin (PRL) is a peptide hormone secreted by the anterior pituitary gland and also by many extra-pituitary sites, including immune cells (Jara et al., 2009). PRL has a role in reproduction, calcium metabolism, osmoregulation, and behavior (Jara et al., 2009; De Bellis et al., 2005). The relationship between PRL and the immune

system has been demonstrated in the last two decades (De Bellis et al., 2005). PRL has multiple immune-stimulatory effects and promotes autoimmunity. It increases the synthesis of IFN-gamma and IL-2 by Th1 lymphocytes (De Bellis et al., 2005). Moreover, PRL activates Th2 lymphocytes with autoantibody production (De Bellis et al., 2005). Many studies evaluated the clinical significance of PRL in different skin diseases with conflicting results (Foitzik et al., 2009).

## 2. Aim of the study

The aim of the present study was to evaluate the prevalence and clinical significance of serum PRL levels in alopecia areata, vitiligo and psoriasis vulgaris patients and to compare them with healthy controls.

\* Corresponding author.

E-mail address: [elsherifnadia@yahoo.com](mailto:elsherifnadia@yahoo.com) (N.A. Elsherif).

Peer review under responsibility of King Saud University.



### 3. Patients and methods

This comparative, descriptive, case–control study was conducted at the Dermatology department at El-Jumhuriya Hospital, Benghazi city, Libya. A hundred subjects were included in the study: 75 patients; suffering from psoriasis, vitiligo and alopecia areata 25 patients in each group and 25 age and gender-matched healthy controls. A verbal consent was obtained from all patients and healthy subjects after explaining the nature of the study to them.

Exclusion criteria were presence of other autoimmune diseases and use of drugs that are known to affect levels of PRL (i.e., psychotropic drugs, thyroid hormones, glucocorticoids, and estrogens or contraceptives). Pregnant and lactating females were also not included in the study. All patients who were on either topical or systemic treatment for one month prior to blood collection were excluded from the study. Blood was collected from all subjects and serum PRL was measured by ELISA.

Psoriasis was graded according to the PASI score, presenting at the time of blood collection. The patients were divided into three groups based on the severity of the disease as mild (PASI <3), moderate (PASI 3.1–10) and severe (PASI >10). Vitiligo patients were divided into two groups as active and stable disease according to the progression of the lesions and the appearance of new lesions in the last three months. The activity of the disease among patients with alopecia areata was determined by positive pull test at the time of examination and/or progression of the lesions in the last month. Comparative analyses were carried out between age, gender, disease durations and activity and serum PRL levels.

#### 3.1. Statistical analysis

All statistical analyses were performed using SPSS software for Windows (Version 16.0). Results are presented as mean and standard deviations for continuous variables and as a number (%) for categorical variables. Comparisons between the patients and the control group were done by *t* test. *P* values <0.05 were considered significant.

### 4. Results

Table 1 shows the demographic characteristics of patients and controls. No significant difference between patients and control subjects was noted.

Table 1  
Demographic data of patients under study and control subjects.

Subjects' number	Psoriasis 25	Alopecia 25	Vitiligo 25	Control subjects 25	<i>P</i> value
Age ± SD	35.8 ± 11 years	31 ± 6 years	34 ± 9 years	35 ± 9 years	.835
Gender					.387
Females	12	13	14	14	
Males	13	12	11	11	

Table 2  
Serum prolactin in patients and control subjects.

Subjects	Psoriasis	Alopecia	Vitiligo	Control
Serum PRL	16.9 ± 7	21.8 ± 12	16.6 ± 8	11.2 ± 6
<i>P</i> value	.003	.000	.005	

The mean serum PRL of psoriasis patients was 16.9 ± 6.8 ng/ml which is statistically significantly higher than serum PRL of control subjects (Table 2). No statistically significant difference was found in serum PRL and patient's age or gender. Ten (66.7%) of the patients with severe psoriasis and 1 (10%) patient with moderate psoriasis had high serum prolactin (*P* < 0.05). About 64% of the patients had disease duration more than 5 years, and as the disease duration increased, serum PRL level also increased (*P* < 0.05).

Patients with vitiligo had a mean serum PRL of 16.6 ± 8 ng/ml which was significantly higher than the serum PRL of the control subjects (Table 2). No significant difference was found in patient's serum PRL and their age, gender, and disease durations. Regarding the activity of their disease 12 (48%) of the patients had active disease, and only 4 (36.4%) of the patients with active disease had high serum PRL (*P* > 0.05).

Among patients with alopecia areata, 9 (36%) patients had multiple patches of alopecia, 5 (20%) had alopecia totalis and 11 (44%) of the patients had alopecia universalis. Their mean serum PRL was 21.8 ± 11.5 ng/ml which was significantly higher than the serum PRL of the control subjects (Table 2). No significant difference was found in patient's serum PRL with their ages, gender and disease duration, however there was a significant correlation between the type of alopecia and serum PRL (*P* < 0.05).

Regarding the activity of their disease 48% of the patients had active disease, moreover 75% of the patients with active disease had high serum PRL (*P* < 0.05). The serum PRL was higher in patients with alopecia areata compared with that in patients with psoriasis and vitiligo but this difference was not statistically significant.

### 5. Discussion

Despite being known primarily as a lactogenic hormone, PRL is in fact also an immunomodulatory hormone (Jara et al., 2009). The relationship between PRL and the immune system has been demonstrated in the last two decades and has opened new windows in the field of

Download English Version:

<https://daneshyari.com/en/article/3214679>

Download Persian Version:

<https://daneshyari.com/article/3214679>

[Daneshyari.com](https://daneshyari.com)