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Comorbidity in Men with Psoriasis

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ABSTRACT

Background: Psoriasis is a chronic incurable disease, and patients develop associated diseases such as obesity, diabetes, high blood pressure, dyslipidemia. **Objective:** The aim of the study is to determine the frequency of comorbidities (obesity, diabetes, dyslipidemia, high blood pressure) in men with psoriasis, and the relationship between the duration of psoriasis and the occurrence of comorbidities. **Methods:** A prospective study was conducted and included 88 male subjects, mean age 52,70 (SD=± 14,05) years, mean psoriasis duration 15,13 (SD=±12,43) years. **Results:** The incidence of obesity was 30,68%, high blood pressure 29,55%, dyslipidemia 22,73%, diabetes 13,64%. There was a weak correlation between the duration of psoriasis and the occurrence of obesity (r=0,11), dyslipidemia (r=0,18), diabetes (r=0,01), and high blood pressure (r=-0,02). **Conclusion:** Comorbidities occur in men with psoriasis, and their occurrence is not related to the duration of the disease.

Keywords: psoriasis, comorbidities, men.

1. BACKGROUND

Psoriasis is a chronic inflammatory disease with multiple comorbidities (1). Studies in patients with psoriasis have shown an increased incidence of comorbidities, such as obesity, metabolic syndrome, high blood pressure, dyslipidemia, diabetes (2-5). Although the exact mechanisms of this association are not known, the occurrence of comorbidity is considered to be responsible for the state of chronic inflammation present in patients with psoriasis and elevated levels of proinflammatory cytokines (6). In addition, genetic factors (7), lifestyle of patients (diet, physical activity, habits), prejudices and stigmatization of patients (8) influence. Studies show that the risk of comorbidities, including cardiovascular diseases, is higher in patients with a longer duration of psoriasis (9, 10).

2. OBJECTIVE

To determine the frequency of comorbidities (obesity, diabetes, dyslipidemia, high blood pressure) in men with psoriasis, and the relationship between the duration of psoriasis and the occurrence of comorbidities.

3. PATIENTS AND METHODS

A prospective study was conducted that included 88 men with psoriasis over the age of 18. The mean age of the subjects was 52,70 (SD=±14,05) years. The average duration of psoriasis was 15,13 (SD=±12,43) years. The prevalence of psoriasis was: psoriasis vulgaris 86,36%, psoriasis guttata 13,64% of respondents. Respondents were introduced to the manner and purpose of the research, and signed a written consent to participate in the research. The study included men with psoriasis diagnosed with psoriasis pathohistologically. The study did not include subjects who, in addition to psoriasis, also suffer from another skin disease, who have been suffering from psoriasis for less than a year and who use systemic therapy.

The research was approved by the Ethics Committee of the University Clinical Center.

Anamnesis was taken, including data on psoriasis, when it was started, which therapy was used, data on psoriasis in the family. A dermatological examination of the skin and visible mucous membranes was then performed. Determining the presence, that is diagnosing obesity, high blood pressure, diabetes and dyslipidemia was performed by examination by an internist (internist's findings).

Sugar and fat values were measured by standard biochemical procedures, after taking a venous blood sample from subjects who did not eat during the night for at least 8 hours.

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The reference values are:

- Reference values for lipids are: cholesterol $\leq 5,2$ mmol/l, triglycerides $\leq 1,7$ mmol/l,
- Glucose reference values are: $\leq 5,6$ mmol/l.
- Reference values of blood pressure are: $<130/85$ mmHg.
- Body mass index (BMI) was determined for all subjects.
- Body weight (expressed in kg) and body height (expressed in cm) were measured.

Then the body mass index was calculated by the formula: body weight in kg divided by body height expressed in meters squared:

$$\text{BMI} = \text{body weight (kg)} / \text{body height (m)}^2$$

The reference values are:

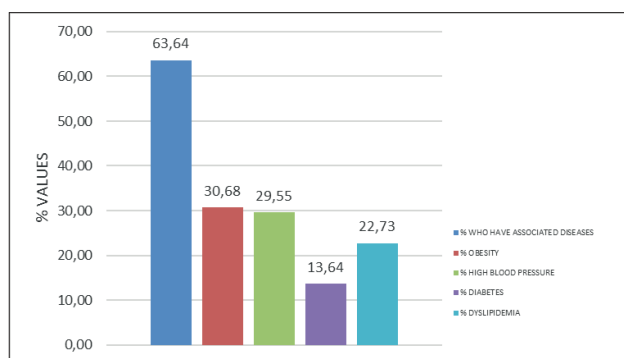
- Malnutrition, BMI lower $18,5 \text{ kg/m}^2$
- Normal body weight, BMI $18,5\text{-}24,9 \text{ kg/m}^2$
- Overweight, BMI $25,0$ to $29,9 \text{ kg/m}^2$
- Obesity, BMI greater than 30 kg/m^2

Statistical analysis

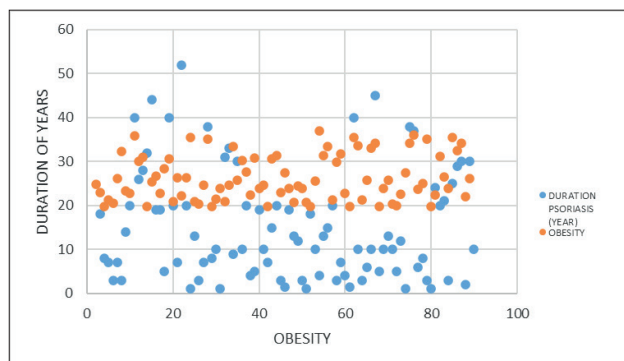
Actual data, which were processed in Microsoft Excel, were used for statistical data processing and obtaining results. Intergroup differences determined by mean with standard deviation. The correlation between the two variables was performed by Pearson's correlation coefficient (since they are linear models). The lowest value of the significance level is $p < 0,05$.

4. RESULTS

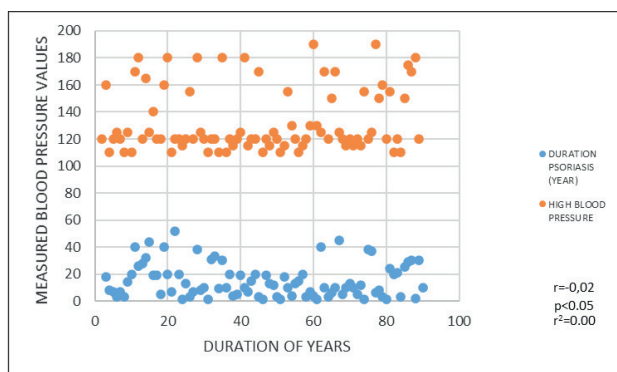
The mean age of the subjects was $52,70$ ($SD = \pm 14,05$) years. The average duration of psoriasis was $15,13$ ($SD = \pm 12,43$) years. The representation of psoriasis was: psoriasis vulgaris $86,36\%$, psoriasis guttata $13,64\%$ of respondents.



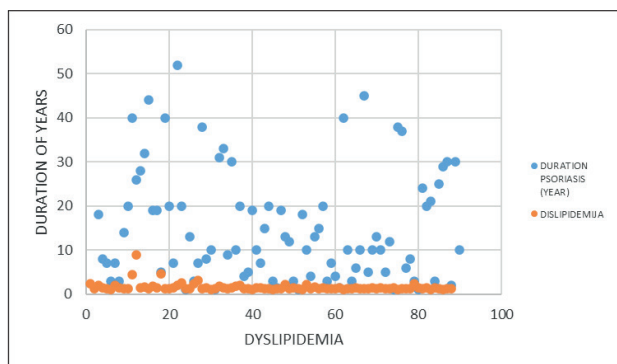
Graph 1. Percentage of associated diseases



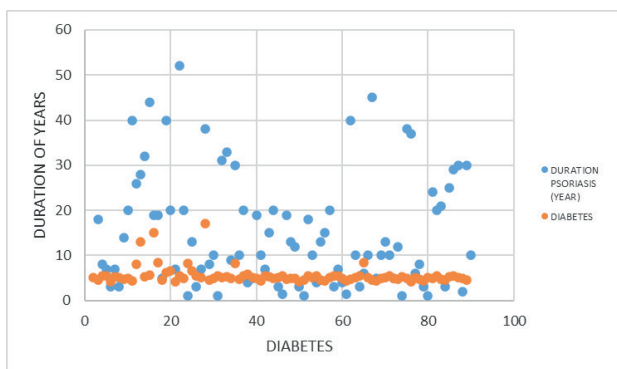
Graph 2. Relationship between psoriasis duration and obesity



Graph 3. Relationship between psoriasis duration and high blood pressure



Graph 4. Relationship between the duration of psoriasis and dyslipidemia



Graph 5. Relationship between the duration of psoriasis and diabetes

One associated disease was present in $40,91\%$ of subjects, two associated diseases were present in $15,91\%$ of subjects, three associated diseases were present in $3,41\%$ of subjects, and four associated diseases were present in $3,41\%$ of subjects.

The value of the correlation coefficient, that is the product-moment coefficient of disease duration and obesity is $r=0,11$, which indicates a weak correlation, and when we talk about the strength of the connection, it indicates a weak relationship between these two variables.

The value of the correlation coefficient, that is the product-moment coefficient of the duration of the disease and high blood pressure is $r=-0,02$, which indicates a relatively weak negative correlation, and when we talk about the strength of the connection, it indicates a weak relationship between these two variables.

The value of the correlation coefficient, that is the product-moment coefficient of the duration of the disease and dyslipidemia is $r=0,18$, which indicates a weak correlation, and when we talk about the strength of the connection, it indicates a weak connection between these two variables.

The value of the correlation coefficient, that is the product-moment coefficient of the duration of the disease and diabetes is $r=0,01$, which indicates a weak correlation, and when we talk about the strength of the connection, it indicates a weak connection between these two variables.

5. DISCUSSION

Psoriasis is a chronic disease of unknown cause. In this study, we examined comorbidity in men with psoriasis, and the relationship between the duration of psoriasis and the occurrence of comorbidity. Thus, the incidence of obesity was 30,68%, high blood pressure 29,55%, dyslipidemia 22,73%, diabetes 13,64%. Other studies have also shown a higher incidence of obesity, diabetes, dyslipidemia, and high blood pressure in patients with psoriasis (11-17).

Although we did not find comorbidity research exclusively in men with psoriasis in the available literature, in a study in Taiwan, there were more male subjects and it was shown that men have a higher incidence of high blood pressure, diabetes, dyslipidemia (18). Men also have higher BMI values than women (19). In a study in Japan, where the majority of respondents were men, they were found to be more likely to get psoriasis if they were obese (20). Other studies also showed the occurrence of associated diseases in patients with psoriasis, so a study that included more men (they made up about 70% of the sample) showed an incidence of obesity of 34,5%, high blood pressure 63,1%, and high blood sugar 28,1% (21). Dyslipidemia was more common in psoriatic patients was shown by a study that had more male subjects (22) but also other studies on dyslipidemia in patients with psoriasis (23-25).

Regarding the association, that is the influence of the duration of psoriasis on the occurrence of comorbidities, in this study there was a weak correlation, that is the association of the duration of psoriasis and the occurrence of obesity ($r=0,11$), dyslipidemia ($r=0,18$), diabetes ($r=0,01$), and high blood pressure ($r=-0,02$). Other studies have shown the effect of the duration of psoriasis on the occurrence of comorbidities, so in a study in Malaysia that examined the incidence of comorbidities in psoriasis patients, the incidence of high blood pressure in psoriasis patients was 25,9%, and was more common if psoriasis lasted longer, it develops later (26). Also, Santos et al. (27) showed that patients with psoriasis with comorbidity, dyslipidemia, and obesity had a longer duration of psoriasis than those without these comorbidities. The connection between psoriasis and comorbidity is complex, because several factors are intertwined, such as genetic, immunological, and chronic inflammatory conditions (28), and they should not be neglected.

Although no statistically significant association was found between the duration of psoriasis and the occurrence of associated diseases in this study, the frequency of associated diseases obliges, in addition to the treatment of skin changes, the prevention, detection and treatment of associated diseases. Because in this study, 63,64% or 56 subjects or almost 2/3 had comorbidity, 40,91% or more than one third had one associated disease, and almost one third had obesity, more precisely 30,68% or 27 respondents. Associated rashes are an additional burden for the patient in several ways: they complicate treatment, economic burden, reduce work capacity and productivity, quality of life, but change the picture of psoriasis from skin to systemic disease.

It is important to understand the characteristics of patients with psoriasis, given the high prevalence of psoriasis, and comorbidities in patients, so that treatment and prevention are as effective as possible. In addition, detecting risk factors for comorbidities in psoriasis is certainly important for everyday practice can provide guidelines for screening patients.

6. CONCLUSION

Comorbidities occur in men with psoriasis, and their occurrence is not related to the duration of the disease. Detection and treatment of these diseases should be part of a comprehensive treatment of psoriasis, and it is certainly important to identify risk factors for comorbidities.

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- **Conflict of interest:** None declared.
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