



ASSOCIATED DEMOGRAPHIC CHARACTERISTICS OF ACNE RECURRENCE IN SEVERE ACNE PATIENTS TREATED WITH ORAL ISOTRETINOIN

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SUMMARY

Objectives: To investigate the relationship between the recurrence rate of acne treated with oral isotretinoin and some demographic characteristics.

Methods: A retrospective, prospective study of 60 severe acne patients treated with isotretinoin divided into 2 groups based on cumulative dosing (60mg/kg and 120mg/kg). Recurrence was defined as the reappearance of grade 1 acne lesions according to Investigator's Global Assessment (IGA) classification (FDA 2005) with at least 10 comedones or grade 2 or higher (at least 2 papules, pustules, or at least one nodule or cyst).

Results: The mean age of the participants was 27.3 years old, 88.3% were female and the mean disease duration was 14.6 months. At the 12 month follow-up, 63.3% of patients in the study experienced relapse. The group of patients aged 18 - 29 had a recurrence rate of 71.4%, which was 1.6 times higher than the group of patients over 29 years old (44.4%); the difference was statistically significant ($p < 0.05$). When evaluated according to other demographic characteristics, the result showed that there was no association between the recurrence rate with gender, body mass index, disease duration, and maintenance therapy.

Conclusion: The relapse rate was higher in younger patients (age 18 - 29 years). There was no association between the recurrence rate with gender, body mass index, disease duration, and maintenance therapy.

Keywords: Acne, recurrence, isotretinoin.

1. INTRODUCTION

Acne vulgaris is a chronic and fairly common disease of the sebaceous follicles. It usually occurs in adolescents with diverse clinical manifestations that may present as comedones, cysts, or pustules.

A study on the global burden of skin disease in 2010 ranked acne among the world's top 10 most common diseases.¹ Although acne can be self-limited, the sequelae, such as atrophic scars, can last a lifetime, leaving a psychological burden and inferiority complex for patients. Therefore, the search for an effective treatment method is increasingly focused on improving the quality of life for patients. Numerous studies have long

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demonstrated the effectiveness of isotretinoin in acne treatment.² Isotretinoin is the only drug that affects all four pathogenic factors of acne, and it is effective even when other treatment methods have failed. Acne can be completely cured but tends to recur.³ Many studies are reporting a relapse rate of acne after withdrawing treatment with oral isotretinoin, with the proportion varying from 2.9% to 52% depending on the patient's dose, follow-up time, and patient characteristics.⁴⁻⁶ Understanding factors that affect relapse will help in increasing treatment efficiency. Therefore, we conducted this study to investigate the relationship between the recurrence rate of acne and some demographic characteristics.

2. MATERIALS AND METHODS

2.1. Subjects

60 severe acne patients at the National Hospital of Dermatology from February 2020 to February 2022.

Inclusion criteria:

- Patients from 18 years old diagnosed with acne vulgaris grade 3, 4 according to IGA classification (FDA 2005) are treated with oral isotretinoin 0.3 - 0.5 mg/kg daily.
- Follow-up for at least one year after discontinuation of oral isotretinoin.
- The patient agreed to participate in the study.

Exclusion criteria:

- Administration of other skin procedures during the treatment.

2.2. Methods

- Study design: This was a retrospective, prospective study.

+ Recruit patients who have completed isotretinoin treatment with a cumulative dose of 60mg/kg or 120mg/kg, and follow patients one year after stopping treatment, or

+ Recruit patients on isotretinoin therapy, and continue to follow-up them until reaching a cumulative dose of 60mg/kg or 120mg/kg and one year after stopping isotretinoin.

Patients took oral isotretinoin at a dose of 0.3 - 0.5mg/kg (Acnotin 10 or 20mg - Mega Lifesciences - Thailand) once a day after dinner, washed their face twice a day with Uriage hyséac gel nettoyant cleansing gel (Uriage - France) then applied Derma-fort (ingredients included azelaic acid, ascorbic acid, glycolic acid, manufactured by Gamma - Vietnam). Maintenance therapy is defined as using topical retinoids daily after discontinuation of oral isotretinoin.

- Sample size: 30 patients for each study group.

- Sampling method: convenience sampling.

Data analysis: Data were analyzed by SPSS 20.0. Selected data were described as numbers (percentage) and tested for differences by the Chi-square test or Fisher's Exact test where appropriate.

Research ethics: The research proposal was approved by the scientific council under Decision No 311/QĐ-DLTW. All the participants signed the consent form for study participation and the anonymous publication of their data and images in a dermatology journal.

3. RESULTS

3.1. Patients demographics

Of a total of 60 patients who complete the treatment and one - year follow-up, 53 (88.3%)



were female and 17 were male (11.7%). The average age at the beginning of the treatment was 27.3 ± 5.3 . Other characteristics were shown in table 1.

Table 1. Characteristics of 60 patients

Characteristic		%
Sex	Male - n (%)	7 (11.7)
	Female - n (%)	53 (88.3)
Age, (mean), years (X ± SD)		27.3 ± 5.3
Disease duration, (mean), months (X ± SD)		14.6 ± 7.4
Acne severity grade (According to IGA)	3 - n (%)	30 (50)
	4 - n (%)	30 (50)
Relapse		63.3

3.2. Recurrence rate and age group

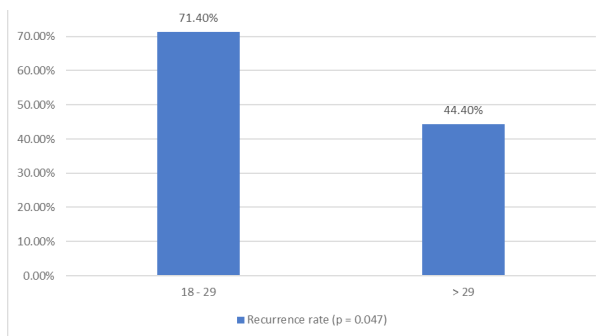


Chart 1. Distribution of patients according to age

Among 60 patients, the majority of the patients are < 40 years old (95%), the age group 18 - 29 years old accounts for the highest rate of 70%, followed by the group 30 - 39 years old (25%). The patients participating in the study were from 18 to 42 years old.

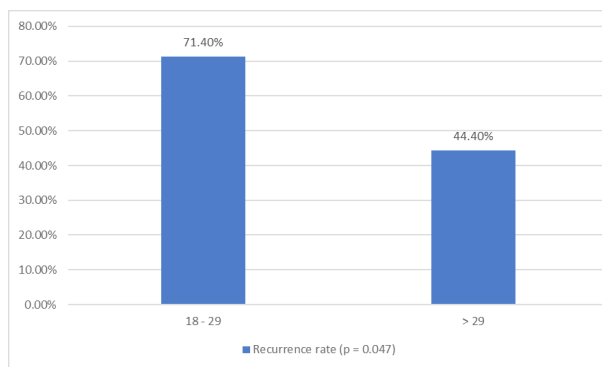


Chart 2. Recurrence rate and age group

The patients from 18 to 29 years old had a recurrence rate 1.6 times higher than that of patients over 29 years old. The difference was statistically significant ($p < 0.05$).

3.3. Gender and recurrence rate

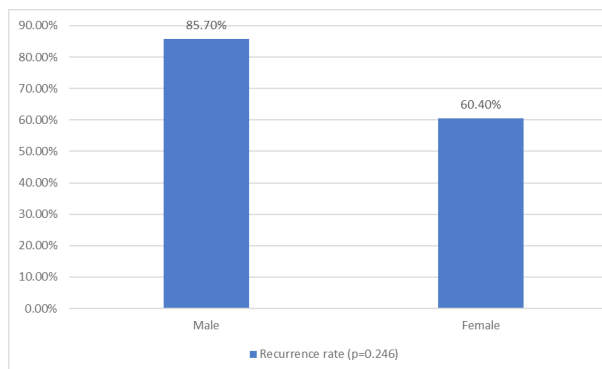


Chart 3. Recurrence rate by gender

There was no difference in the recurrence rate in both genders with $p > 0.05$.

3.4. Body mass index

Table 2. Recurrence rate according to body mass index

BMI	n	Recurrence rate
< 18.5	18	77.8%
18.5 - < 25	40	57.5%
≥ 25	2	50%
p		0.246

BMI of the patient didn't affect the recurrence rate of the patients ($p > 0.05$).

3.5. Disease duration

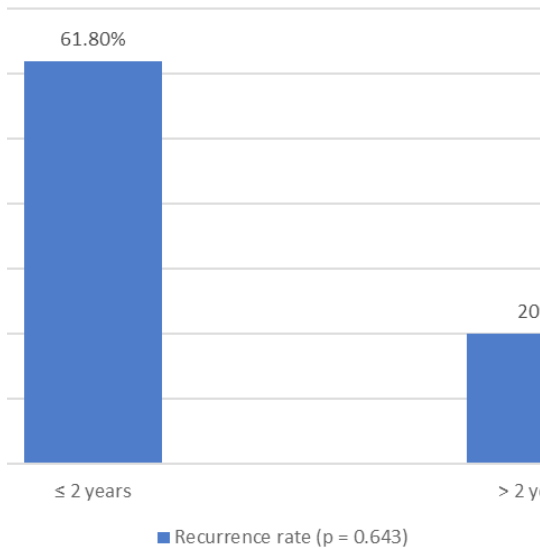


Chart 4. Distribution of the disease according to the duration of illness

Most of the patients suffered from acne for more than 1 year, and the number of patients with disease duration from 1 to 2 years accounted for the highest percentage (53.3%).

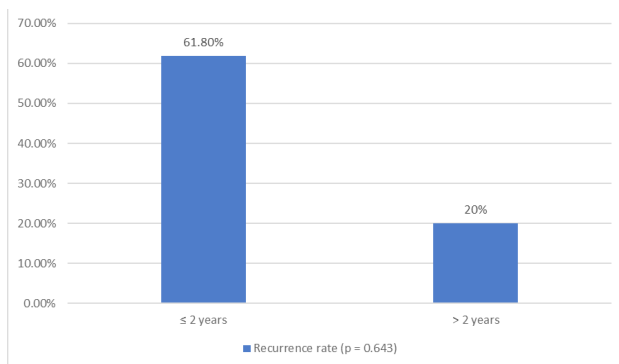


Chart 5. Recurrence rate over illness duration

There was no difference in recurrence rate between the group of patients with acne vulgaris ≤ 2 years and the group over 2 years ($p > 0.05$).

3.6. Recurrence rate and maintenance therapy

Table 3. Rate and time of relapse in relation to maintenance therapy

	Recurrence rate	Recurrence time after stopping isotretinoin (month) - $X \pm SD$
Maintenance therapy	55.6%	4.9 ± 2.3
Without maintenance therapy	69.7%	6.1 ± 2.9
p	0.258	0.186

There was no difference in the rate and time of acne recurrence of the 2 groups with maintenance therapy and without maintenance treatment with $p > 0.05$.

4. DISCUSSION

In our research, the study subjects were patients from 18 years old, in both genders, the most common ages were 20 - 29 years old, accounting for 65%, and the majority were female. The prevalence of acne decreases with age. The distribution of patients by age in our study is similar to that of Collier CN's study on the prevalence of acne in adults over 20 years old in the United States, surveying over 1000 patients³. In this study, the rate of acne gradually decreased with age; the rate of acne in males and females aged 20 - 29 years old accounted for the highest figure, with 43% and 51% in males and females, respectively. Patients in this age group have many social relationships; they often pay special attention to their appearance, so the proportion of patients going to the doctor and getting treatment is higher.



In 1982, the first cases of relapse were reported in patients with acne following a course of treatment with high-dose oral isotretinoin (1mg/kg/d), with recovery of sebum production by the sebaceous glands at 16 weeks after discontinuation of treatment⁷. The relapse rate relates to diverse factors and their interaction such as; daily average dose, cumulative dose, treatment duration, variations in patient characteristics (e.g., gender, age, degree and location). There is much controversy over the importance and contribution of each factor in the rates of recurrence.

We found that patients between 18 and 29 had a recurrence rate 1,6 times higher than patients over 29 years old; the difference was statistically significant ($p < 0.05$). In the literature, relapse was found higher in patients under the age of 16, 18, 20, and younger age^{3,4}. Our research once again confirmed that age was a statistically significant predictive factor.

In our study, when the patients were evaluated in terms of sex, although the female sex ratio was high, there was no difference in relapse frequency. This result is similar to Alshammari SA et al's study on 427 acne patients. The authors found that the recurrence rate was 96 (46,8%) female patients and 15 (36.6%), but this difference was not statistically significant¹⁰.

Our study showed no association between BMI (Body Mass Index) and the recurrence rate of acne. This finding is similar to the results of Alshammari SA et al's study; these authors found that risk factors such as smoking, family history, and BMI did not affect the recurrence rate of acne¹⁰.

When evaluated according to disease duration, our study showed that the majority of patients had acne for more than 1 year (81,6%). The duration of illness of the patients in our study was similar to the study of Nguyen Thi Minh Hong (2008). In this study, the rate of patients with acne over 1 year was up to 80.9%; only 19.1% of patients had the disease for less than 1 year¹¹. In our study, no relationship was observed between disease duration and relapse.

After isotretinoin treatment, the rate and time of relapse between the maintenance therapy group and the no maintenance treatment group were not different ($p > 0.05$). Thus, in our study, the maintenance therapy did not affect the time of acne recurrence after stopping isotretinoin. The effectiveness of topical maintenance therapy on relapse cannot be fully determined in this study because it was used in a small number of patients. In another retrospective study that reported that maintenance treatment did not affect relapse, maintenance therapy was used in a small number of patients, as in our study⁹. In fact, our study's effectiveness of maintenance treatment has not been accurately evaluated due to sample size limitations.

5. CONCLUSION

According to the findings in our study, it should be considered that relapse will occur more in younger patients, there was no association between the recurrence rate with gender, body mass index, illness duration, and maintenance therapy. Larger sample size studies are necessary to evaluate exactly the relation between risk factors and acne relapse.

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