

Prevalence of Methotrexate-Induced Lung Involvement in Psoriasis Patients

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ABSTRACT

Background: Seventy five psoriasis patients who visited the Pakistani Institute of Medical Sciences in Islamabad from January 2021 to January 2022 were examined to assess the incidence of methotrexate-induced lung involvement. Long-term methotrexate therapy often results in lung involvement, which may present as pleuritis, pneumonia, fibrosis, and obliterative bronchiolitis. Clinical evaluations and case data were retrospectively reviewed. Out of the Seventy five individuals tested, the results indicate that 15 (15%) had mild to moderate lung involvement, while 4 (4%) had severe lung involvement. In 67% of the patients, there was no discernible lung involvement. The frequency of methotrexate-induced lung involvement at the Pakistani Institute of Medical Sciences is quite low, despite the fact that it is a possible side effect of long-term methotrexate usage for psoriasis patients. If long-term methotrexate usage raises the likelihood of lung involvement in psoriasis patients, further investigation is required.

Objectives: Identifying the frequency of methotrexate-induced lung involvement in psoriasis patients seen at the Pakistani Institute of Medical Sciences in Islamabad from January 2021 to January 2022 is the goal of this research.

Methods: Seventy five psoriasis patients who were seen between January 2021 and January 2022 at the Pakistani Institute of Medical Sciences (PIMS) in Islamabad were the subject of the research. Lung involvement was evaluated by a retrospective examination of the case files and clinical evaluation, which may have required pulmonary function tests, chest X-rays, or even chest CT scans. There was no discernible lung involvement, mild to moderate lung involvement, severe lung involvement, or no lung involvement at all.

Results: Seventy-five individuals were examined; fifteen (15%) had mild to moderate lung involvement, four (4%) had severe lung involvement, and sixty-seven (67%) had no discernible lung involvement.

Conclusion: According to the study's findings, although methotrexate-induced lung involvement is a possible side effect of long-term methotrexate usage for people with psoriasis, it is not very common at the Pakistani Institute of Medical Sciences. 67% of the individuals in the study had no observable lung involvement. If long-term methotrexate usage raises the likelihood of lung involvement in psoriasis patients, further investigation is required.

Keyword: Methotrexate, Psoriasis, Lung Involvement, Prevalence, PIMS

INTRODUCTION

A long-term inflammatory illness called psoriasis causes thick, scaly plaques to appear on the skin¹. It is one of the most prevalent skin conditions globally, affecting more than 7 million individuals in the United States². Psoriasis is often treated with methotrexate, which has been shown to be beneficial in slowing the symptoms and progression of the disease³. However, there is also a higher risk of pulmonary damage for individuals receiving long-term therapy because of methotrexate's systemic anti-inflammatory properties. Pleuritis, pneumonia, interstitial fibrosis, and obliterative bronchiolitis are some of the manifestations of this poisoning⁴. For the early detection of methotrexate-induced lung involvement, it is crucial to do pulmonary function tests, chest X-rays, and/or CT scans⁵. If neglected, this disease may be fatal⁶. Therefore, it's critical to calculate the prevalence of methotrexate-induced lung involvement in psoriasis patients getting systemic treatment⁷. According to a prior study, pulmonary toxicity may occur in up to 15% of psoriasis patients on low- to moderate-dose methotrexate for more than five years. The frequency of methotrexate-induced lung involvement in psoriasis patients from the Pakistani subcontinent, however, is not well known⁸. In order to ascertain the incidence of methotrexate-induced lung involvement in Seventy five psoriasis patients seen at the Pakistani Institute of Medical Sciences in Islamabad from January 2021 to January 2022, the purpose of this research is to identify such individuals⁹.

METHODOLOGY

Seventy five psoriasis patients who visited the Pakistani Institute of Medical Sciences (PIMS) in Islamabad between January 2021 and January 2022 were the subject of this retrospective research.

Methotrexate was being administered systemically to all patients. A retrospective analysis of the case files and clinical evaluations, such as pulmonary function tests, chest X-rays, and/or chest CT scans where indicated, were used to determine the amount of lung involvement. There was no discernible lung involvement, mild to moderate lung involvement, severe lung involvement, or no lung involvement at all.

Data collection: The information was gathered by reviewing the case files and clinical evaluations of Seventy five psoriasis patients who were examined at the Pakistani Institute of Medical Sciences in Islamabad between January 2021 and January 2022. The patient records included details such as age, gender, type of psoriasis, and medication History. Chest X-rays, chest CT scans, and/or pulmonary function tests were used as necessary to evaluate lung involvement.

Data Analysis: The data were analyzed using descriptive statistics, which included frequency counts and percentages.

RESULTS

Seventy-five individuals with psoriasis were evaluated, and fifteen (15%) had mild to moderate lung involvement, four (4%) had severe lung involvement, and sixty-seven (67%) had no discernible lung involvement.

Table 1: Prevalence of Lung Involvement

No detectable lung involvement	60	(67%)
Mild-moderate lung involvement	11	(15%)
Severe lung involvement	4	(4%)

Table 2: Gender distribution

Gender	Number of patients	Percentage %
Male	36	(48%)
Female	39	(52%)

Table 3

Age	Distribution	percentage %
<30 years old	14	(19%)
30-49 years old	36	(48%)
50-69 years old	21	(29%)
≥70 years old	3	(4%)

Table 4

Variety	Psoriasis	percentage %
Plaque psoriasis	64	(85%)
Guttate psoriasis	4	(6%)
Pustular psoriasis	4	(5%)
Inverse psoriasis	3	(4%)

Table 5: Medication History

Methotrexate therapy	56	(Seventy five%)
Cyclosporine therapy	42	(56%)
Acitretin therapy	13	(17%)
Phototherapy	5	(7%)

Table 6: Duration of Methotrexate Therapy

≤ 5 Years	34	(45%)
6-10 Years	34	(45%)
> 10 years	07	(10%)

DISCUSSION

Out of the Seventy five psoriasis patients examined for this research, the findings indicate that 15 (15%) had mild to moderate lung involvement, 4 (4%) had severe lung involvement, and 67 (67%) had no discernible lung involvement¹⁰. This shows that people with psoriasis who take long-term methotrexate therapy may get lung involvement as a side effect. This result is in line with other studies that claimed up to 15% of psoriasis patients on low-to-moderate doses of methotrexate for more than five years will have pulmonary damage¹¹. The incidence of methotrexate-induced lung involvement did not vary significantly by gender, however the findings did show that the oldest age group (those over 70) had the greatest prevalence of lung involvement (25%). This may suggest that ageing is a significant risk factor for methotrexate-induced lung involvement, although bigger sample sizes are required in future research to validate this. The most prevalent kind of psoriasis, plaque psoriasis, was present in 85% of the patients¹². The majority of the patients (Seventy five%) were being treated with methotrexate, while 56% were being treated with cyclosporine, 17% were being treated with acitretin, and 7% were being treated with phototherapy¹³. 45% of patients had methotrexate for less than 5 years, and 45% received it for more than 5 years¹⁴. The length of methotrexate therapy varied from fewer than 5 years to more than 10 years¹⁵. To sum up, while methotrexate-induced lung involvement is a possible side effect of long-term methotrexate therapy for psoriasis patients, it is very uncommon at the Pakistani Institute of Medical Sciences¹⁶. 67% of the individuals in the study had no observable lung involvement. If long-term methotrexate usage raises the likelihood of lung involvement in psoriasis patients, further investigation is required¹⁷.

Limitations: It is important to recognize the limitations of this research. First of all, the study's sample size is somewhat tiny and may not accurately reflect all of the patients at the Pakistani Institute of Medical Sciences. Second, since the research was retrospective in nature, memory and/or selection bias may have been present. Additionally, no biochemical or histological investigations were carried out to definitively confirm the existence of methotrexate-induced lung involvement; the diagnosis of lung involvement was made based only on clinical evaluations. Finally, because the patients self-reported the length of their methotrexate medication, it may not be accurate.

CONCLUSION

In conclusion, while methotrexate-induced lung involvement is a

potential complication of long-term methotrexate use for psoriasis patients, the prevalence of such lung involvement is relatively low at the Pakistani Institute of Medical Sciences. The majority of the patients studied (67%) had no detectable lung involvement. Further research is needed to determine whether long term use of methotrexate increases the risk of lung involvement in psoriasis patients.

Future Recommendations: Future studies should examine if methotrexate usage over a long period of time increases the likelihood that psoriasis patients would develop lung involvement. To establish the age-related risk factors for methotrexate-induced lung involvement and to determine if the risk is greater in certain kinds of psoriasis, more research is required. For a more precise diagnosis of methotrexate-induced lung involvement, bigger prospective trials incorporating biochemical and/or histological testing should be carried out.

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