



Global Journal of Clinical Medicine and Medical Research [GJCMMR]

ISSN: 2583-987X (Online)

Abbreviated key title: Glob.J.Clinic.Medici.Medica.Res.

Frequency: Monthly

Published By GSAR Publishers

Journal Homepage Link- <https://gsarpublishers.com/journal-gjcmmr-home/>

Concerns and awareness of isotretinoin misuse among acne patients: Factors that may affect compliance

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Article History

Received: 21/05/2024

Accepted: 05/06/2024

Published: 07/06/2024

Vol – 2 Issue – 6

PP: -15-20

Abstract

This study evaluates the knowledge, concerns, and awareness of Libyan adolescents and young adults about isotretinoin, an oral medication used for severe acne treatment. The study found that young females were more likely to use isotretinoin than males, and most were less than 26 years old. Most users were unaware of the risks and side effects, and 32% used it without a prescription. The most common side effects were dryness, mouth infections, hair loss, depression, and sun exposure sensitivity. The study concluded that enhancing the safe use of isotretinoin requires raising awareness about potential misuse and providing comprehensive education and support from healthcare providers.

Keywords: severe acne; isotretinoin, side effects, misuse

INTRODUCTION

Isotretinoin, also known as Accutane or 13-cis-retinoic acid, is a medication used to treat severe acne [1]. It reduces fat released by sebaceous glands, aiding skin renewal [2]. It also helps prevent acne by reducing sebum production and has anti-inflammatory properties [3, 4]. Isotretinoin is also used to prevent certain skin cancers and manage skin conditions like harlequin-type ichthyosis and lamellar ichthyosis [5, 6]. Its potency sets it apart from other treatments like topical treatments, antibiotics, hormonal therapy, chemical peels, and diet lifestyle changes [7,8,9]. Isotretinoin treatment for acne takes time and may worsen for 1-2 months before improving [10, 11]. It works by decreasing oil production by the skin's sebaceous glands, preventing pore blockages, and reducing inflammation [12]. However, it requires time and can cause systemic side effects like dry skin, chapped lips, nosebleeds, sensitivity to sunlight, and temporary worsening of acne [13,14,15,16]. It can also cause birth defects in pregnant women [17] and serious side effects like depression and liver damage [18]. Severe acne can lead to pain, depression, anxiety, low self-esteem, and poor grades [19,20, 21,22]. Isotretinoin has been found to be highly effective in treating severe acne, improving a patient's quality of life, and reducing negative effects [23,24 and 25]. Isotretinoin, a highly teratogenic medication, has been approved for marketing under a restricted distribution risk assessment [26]. The International Risk Mitigation System (REMS) requires patients to complete monthly tasks, including follow-up visits and blood tests [27]. Due to its availability without a

prescription, strict monitoring isn't guaranteed. This study investigates Libyan adolescents and young adults' knowledge, concerns, and awareness about isotretinoin, an oral medication for severe acne, and identifies factors affecting compliance.

Design and Methods:

A survey was conducted through a questionnaire that distributed in various pharmacies in the city of Tripoli, Libya. The data was also collected among online student groups. A total of 66 users between the ages of 17 and 38 years between August 2023 and February 2024 were included in this study. This survey consists of ten questions, including the user's data (gender and age), who informed them about the medication and how it was prescribed to the patient, the duration of medication use, the most common side effects experienced by the user, the necessary tests performed during medication use, and whether these tests were conducted regularly during medication use. Users were also asked about their overall perception of the effectiveness of the medication and whether they would recommend its use to other people.

Ethics: Permission was taken from the survey participants to display the data and results for the purpose of this study.

Conflict of interest statement: The authors have declared that no competing interests exist.

Results:

Through the 66 users, it was found that 89.4% were females, while 10.6% were males (Fig 1). Their ages ranged between



17 and 38 years (Fig 2). It was revealed that 68% of them used the medication through a doctor's prescription, while 24% used it were due to the failure of other acne treatments, and 8% used it out of personal desire (Fig 3). Among the survey questions, there was one asking who informed them about the medication. The answers showed that 83% of them were informed by a doctor, 9% by a pharmacist, 4% by friends, 1% through advertisements, and 3% had other reasons (Fig 4). The duration of medication usage varied from one patient to another. 57.8% of them used the medication for a period ranging from 1 to 4 months, while 31.3% used it for 4 to 6 months (Fig.5). Additionally, 10.4% used it for 6 to 8 months (Fig. 5). The most common side effects of using the medication were dryness of the mouth, eyes, and skin, with a percentage of 83% of users experiencing these effects (Fig. 6). This was followed by hair loss with a percentage of 26% and occurrence of depression with a percentage of 23% (Fig. 6). Sun sensitivity was recorded at 18.5%, while liver problems were reported at 6% (Fig. 6). Elevated levels of blood sugar and cholesterol were observed in 5% of cases (Fig. 7). Finally, risks during pregnancy were recorded at a rate of 3% (Fig. 6). Other symptoms were recorded at a rate of approximately 12%, including muscle pain, night blindness, digestive disorders, chronic constipation, and anal itching (Fig. 6).

The users were asked about the necessary tests they underwent before using the medication, and it was found that 38% of them underwent kidney and liver function tests (Fig. 7). Meanwhile, 33% of them underwent comprehensive blood tests (Fig. 7). Additionally, 28% of them underwent cholesterol and triglyceride tests (Fig. 7). Only 1% of them underwent a pregnancy test before starting the medication (Fig. 7).

Furthermore, users were asked about the frequency of undergoing these tests during medication use. It was found that 56% of the users underwent these tests only once before using the medication (Fig. 8). Meanwhile, 25% of them underwent the tests every month, 12% underwent them every two months, and 7% underwent them every three months (Fig. 8).

Users were also asked about the overall effectiveness of the medication. It was found that 58.5% of them found the medication to be excellent in terms of effectiveness, while 36.9% found it to be moderate, and 4.6% found it to be weak (Fig. 9).

Then users were asked whether they recommend the use of the medication for people suffering from acne. The response was 82.8% yes, while 17.2% answered no (Fig. 10).

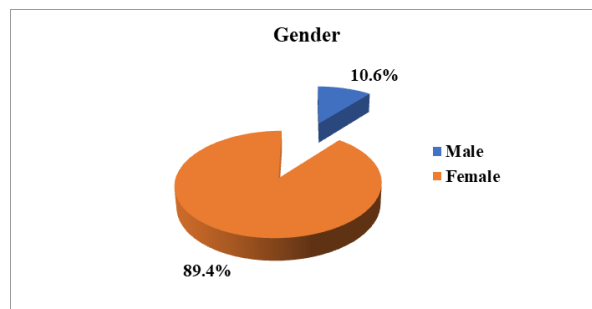


Fig. 1: Young adults using isotretinoin.

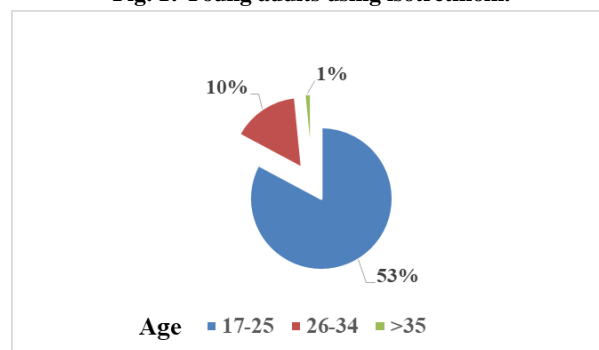


Fig. 2: Age disparity for isotretinoin users.

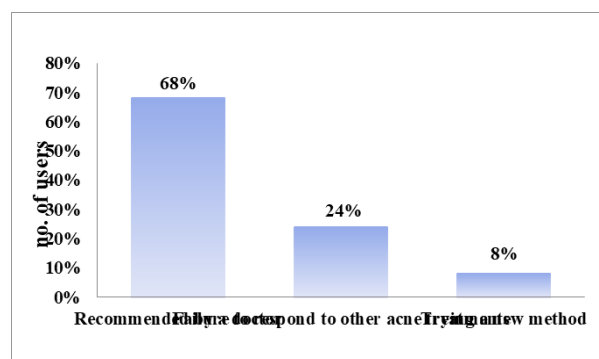


Fig. 3: Disparity of the reasons behind using the isotretinoin.

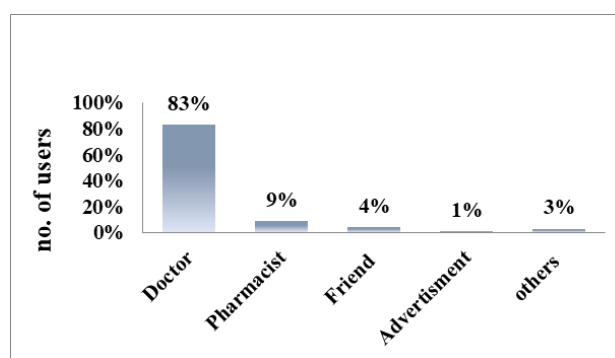


Fig. 4: User information source for isotretinoin.

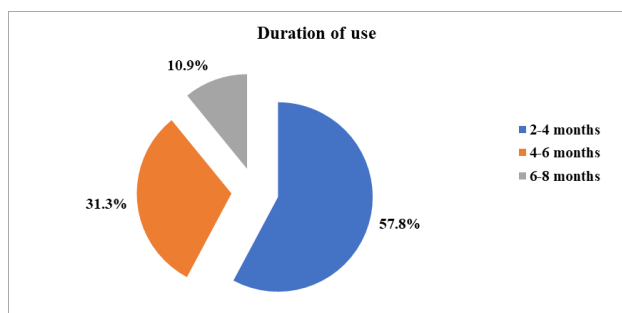


Fig. 5: The duration of isotretinoin usage.

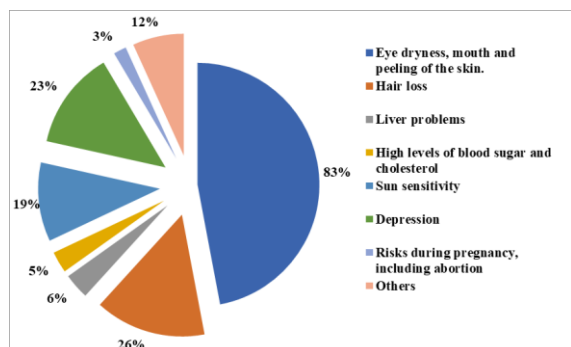


Fig. 6: Side effects that may appear during or after isotretinoin treatment.

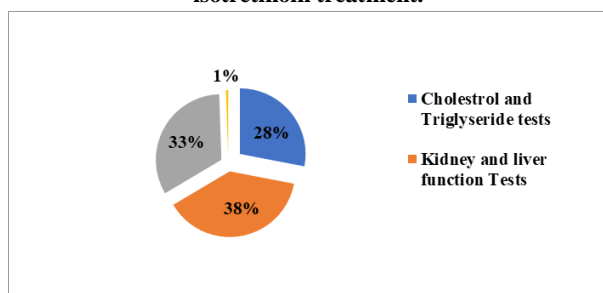


Fig. 7: Various blood tests performed during isotretinoin uses.

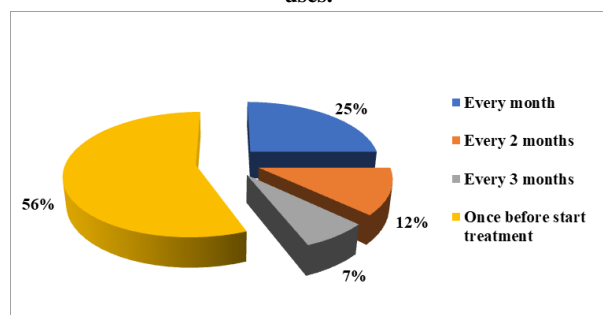


Fig. 8: Number of times that blood tests performed before and during isotretinoin

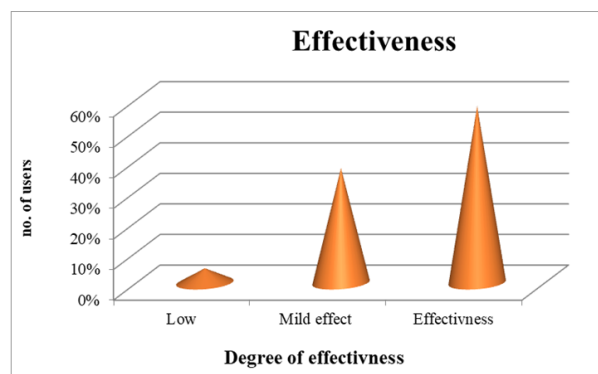


Fig. 9: The effectiveness of isotretinoin use

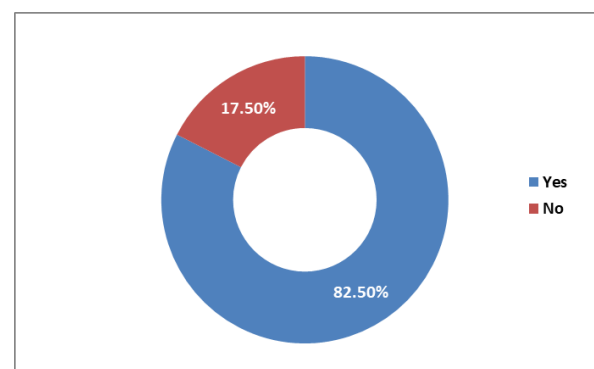


Fig. 10: The recommendation of isotretinoin use.

Discussion:

Acne vulgaris affects most teenagers and young adults and accounts for a large proportion of dermatologists' and general practitioners' cases. Understanding the pathogenesis of acne vulgaris is still evolving [23]. Multiple factors are known to influence the pathophysiology of acne, including genetic, hormonal, inflammatory, and environmental influences [23]. Isotretinoin, commonly known as Accutane, is a powerful medication used primarily to treat severe acne [24, 25]. Other use includes moderate acne, cutaneous T-cell lymphomas, neuroblastoma, prevention of squamous cell carcinoma in high-risk patients, rosacea, folliculitis, and pyoderma facial [25, 26,27,28 and 29]. Recent research into the effects of isotretinoin administration in individuals with acne present promising results however, further study of the effects of isotretinoin on acne is needed to support the findings of these early studies. In this study, we figure out the current evidence regarding the isotretinoin use patients with acne and how they may impact acne and acne treatment.

This study included 66 users between the ages of 17 to 38 years, and young women were more likely to use it than young men. Studies reported that the reason may be more hormonal and appears to be linked to polycystic ovary syndrome in young women, in addition to the appearance of pimples when using contraceptive pills [30,31 and 32]. Most of the users, female and male, were under 26 years old and did not know the risks beyond dry skin. About 32% used isotretinoin without a prescription. The most common side effects during treatment were dehydration, mouth infections, hair loss, depression, and sensitivity to sun exposure [as

reported in 33,34,35,36,37 and 38]. Most users were not aware of the necessity of regular laboratory blood tests. However, some cases were recorded that were affected by liver problems, and few of them were affected with other serious side effects [36,37,38 and 39]. Compliance with isotretinoin treatment can be influenced by various factors: common and serious side effects, Duration of treatment, monitoring requirements, psychological impact, cost, and misinformation [40]. Addressing these factors through education, support, and close monitoring can help improve compliance with isotretinoin treatment and optimize outcomes for users with severe acne [41]. Users should be discouraged from self-prescribing isotretinoin or sharing their medication with others. Moreover, misuse of isotretinoin can lead to inappropriate dosing, inadequate monitoring, and increased risk of adverse effects [40,41]. Users may be less likely to comply with treatment if they experience severe or bothersome side effects. Users on isotretinoin are often required to undergo regular monitoring, including blood tests and pregnancy tests for females due to the drug's teratogenic effects. Cost barriers may lead some users to skip doses or discontinue treatment prematurely. Users with strong social support networks may be more likely to adhere to their isotretinoin treatment plans [42]. One of the warnings for use is that isotretinoin is contraindicated in users with a history of psychiatric disorders or substance abuse. Users struggling with substance abuse issues may have difficulty adhering to treatment guidelines. Special awareness among female users of childbearing potential about the need for strict contraception measures and monthly pregnancy tests is essential to prevent unintended pregnancies and birth defects. Thus, general awareness by the need for these monitoring procedures ensures that users receive appropriate follow-up care and that any potential complications can be identified and managed promptly. Users also need to understand the importance of completing the full course of treatment as prescribed by their healthcare provider to maximize the effectiveness of the medication and reduce the risk of acne relapse.

Conclusion

Dermatologists prioritize patient safety when prescribing isotretinoin, addressing awareness and concerns about misuse among acne users. Continuous assessment and education are crucial for safe use. Factors affecting compliance include healthcare professionals' knowledge, safety tools, and regulations. Education, support, and monitoring can improve treatment compliance and outcomes.

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doi:10.7759/cureus.55555

