

Knowledge And Awareness Of Acne Patients About Isotretinoin Use And Safety In Dawadmi Governorate, Riyadh Region, Saudi Arabia

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ABSTRACT

Background: Acne is highly prevalent among the young population in KSA. Oral isotretinoin is the most effective choice in the treatment of severe acne, which has potential adverse effects.

Aim of the study: To assess knowledge and awareness of acne patients in Dawadmi Governorate about isotretinoin use and safety.

Methods: This non-interventional cross-sectional survey was conducted through distribution of questionnaires over two months period (Sep. and Oct. 2019) in acne patients from the Dawadmi Governorate.

Results: A total of 105 acne patients participated in the study, 77.1% were female and 22.9% were male, 88.6% knew about isotretinoin and its use and adverse effects. About (10.5%) of the participants used isotretinoin with mild acne which is contradictory to the recommended guidelines. Nearly 56.2% of the participants did not examine blood glucose before isotretinoin use, 9.5% of the participants did not examine blood glucose, lipid profile and liver enzymes before isotretinoin use. Not all of participants knew that depression (40%), inflammatory bowel disease (79%), osteoporosis (54.3%), and sunburns (22.9%) are isotretinoin associated risks. Most participants (89.5%) appropriately recognized teratogenicity as the greatest hazard concomitant with the use of isotretinoin. Despite that, 29.5% of the women did not know that they must stop administration of the drug at least 1 month before pregnancy. Half of participants (50.5%) did not know that they should not donate blood during use of isotretinoin and (61.9%) did not know they must stop administration of the drug at least 1 month before donation.

Conclusion: This study shows that acne patients are not sufficiently aware of the convenient use of isotretinoin. Therefore, greater attention should be allocated on educating physicians and pharmacists to improve the safe use of isotretinoin. We recommend applying more effective regulations to restrict non-prescribed isotretinoin dispensing in KSA.

Keywords: Acne; Isotretinoin; Adverse effects; Teratogenicity; knowledge; awareness.

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INTRODUCTION

Acne is a chronic skin condition characterized by non-inflammatory open and/or closed comedones (blackheads and whiteheads) and inflammatory lesions (papules, pustules, cysts or nodules) typically located on the face, neck, back, chest, and upper arms. It is a multifactorial disease, in which all age groups are affected but most seen in adolescents. Approximately 85% of young people are affected. The presentation varies significantly, from mild comedones to fulminant systemic disease [Bologna et al., 2018; Bhate and Williams, 2013]. Isotretinoin, a vitamin A derivative, United States FDA (Food and Drug Administration) Approval date May 07, 1982 for the treatment of severe acne, severe nonnodular inflammatory acne and for patients with moderate acne that is unresponsive to conventional therapy [United States FDA (Food and Drug Administration), 2020; American Academy of Dermatology, 2010]. Isotretinoin is recommended by the American Academy of Dermatology (AAD) for severe or moderate acne do not respond to other therapy [Azoulay et al., 2006; Zaenglein et al., 2016].

Side effects of isotretinoin include increased blood cholesterol levels, liver dysfunction, depression, and

teratogenicity [Tripathi et al., 2013]. Women of childbearing potential are expected to use at least two tools of contraception while using isotretinoin [AlGhamdi et al., 2011].

Evidence-based data regarding the implication of isotretinoin in the development of psychiatric symptoms, including depression, anxiety, mood swings and suicidal ideation is questionable [Suuberg, 2019]. A number of studies considered that the isotretinoin is claimed to be associated with the negative consequences on the psychological well-being of the patients [Rogers and Pies, 2008; Fakour, 2014]. Its mechanism of action depends on decreasing sebum production, and thus acne lesions and acne scarring [Al-Harbi, 2010].

Several side effects are associated with isotretinoin including dryness of mouth, nose, skin, eyes syndrome, thinning of the hair, decreased night vision and increased sunburn susceptibility [Layton, 2009]. Osteophytes also occur more considerably in patients receiving dosages more than 2 mg/kg/d and those with inflammatory bowel disease [Coughlin, 2015; Rashtak et al., 2014].

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Aims of study

To assess knowledge and awareness of acne patients in Dawadmi Governorate about isotretinoin use and safety.

METHODS AND PATIENTS

This non-interventional cross-sectional survey was conducted through distribution of Arabic questionnaires which disseminated through social media (Twitter and Whatsapp) over two months period (September and October 2019) in acne patients from the Dawadmi Governorate. The inclusion criteria were as follows: aged 13 years or older, residing in Dawadmi governorate, having acne and use isotretinoin for treatment. Data were entered into Excel (Microsoft office) worksheets and then transferred to SPSS (version 26, IBM) for statistical analyses. Categorical analyses of frequencies and cross tabulations were done using the Chi-square and standardized residual analysis in SPSS.

Ethical Approval

The research protocol was approved by research ethics committee, Pharmacy College, Shaqra University, Dawadmi, Saudi Arabia.

RESULTS

This study was carried out from September to October 2019. One hundred and five persons participated in the survey; about 77.1% were females and the rest were males, with an age range of 12-44 years. Physicians in case of 86(81.9%) of the responders had prescribed isotretinoin, whereas 10 (9.5%) of the responders took isotretinoin on a friend's advice. For the acne stages, 11(10.5%) of the participants who were already using isotretinoin were experiencing only a mild acne condition represented as lower than 30 blackheads and whiteheads which is quite a high percentage. In particular, it is not recommended to use isotretinoin in this early acne stage. Of 36 (34.2%) and 38 (36.2%) of the participants used isotretinoin for, respectively, a moderate acne condition, represented as about 100 blackheads and whiteheads, and a severe acne condition, represented as lobules (large painful red lumps; Table 1). As regards the course

duration, 25 (23.8%) of the responders continued using isotretinoin for 1 to 2 months and majority, 42 (40%) continued using it for 3 to 5 months, and 29 (27.6%) used it for 6 to 8 months; the rest 9 (8.6%) used it for 9 to 12 months. About 93 (88.6%) of the participants felt that they were provided sufficient information about isotretinoin (Table 1). Physicians took blood samples to measure the lipid profile and liver functions before prescribing isotretinoin in about 93(88.6%), indicating that the physician had proper knowledge about the importance of measuring basal lipids profile and liver functions. But only 46 (43.8%) asked to measure blood glucose level (Figure 1). As shown in Table 1, 67 (63.8%) of the responders knew that isotretinoin has adverse effects on the long term whereas the rest did not know. Forty-two (40%) of the responders did not know that isotretinoin can affect the mental state and that it is contraindicated for people who have depression. As shown in Figure 1, 81 (77.14%) of the participants were advised to avoid sunlight while using isotretinoin, and 94 (89.5%) knew that it caused dryness of the skin, lips, and the whole body. Only 48(45.7%) of the responders knew that isotretinoin affects bone density, which is an important adverse effect, especially because most of the participant are female. In addition, only 22 (21%) knew that isotretinoin is contraindicated for inflammatory bowel syndrome (especially of the colon) patients, 52 (49.5%) of participants knew that they cannot donate blood during using of medicine but only 40 (38.1%) knew that they should stop using the medicine at least a month before blood donation. Finally, concerning the teratogenicity during pregnancy, 94 (89.5%) recognize that isotretinoin is contraindicated for pregnant women, and 74 (70.5%) knew that they must discontinue isotretinoin at least 1 month before conception, but only 11 (34.4%) Of married women are using two contraceptive tools during using isotretinoin.

Table 1

Results of the Questionnaire Including the Demographic Data, Physician Practice, and Contraindications According to Current American Academy of Dermatology Guidelines.

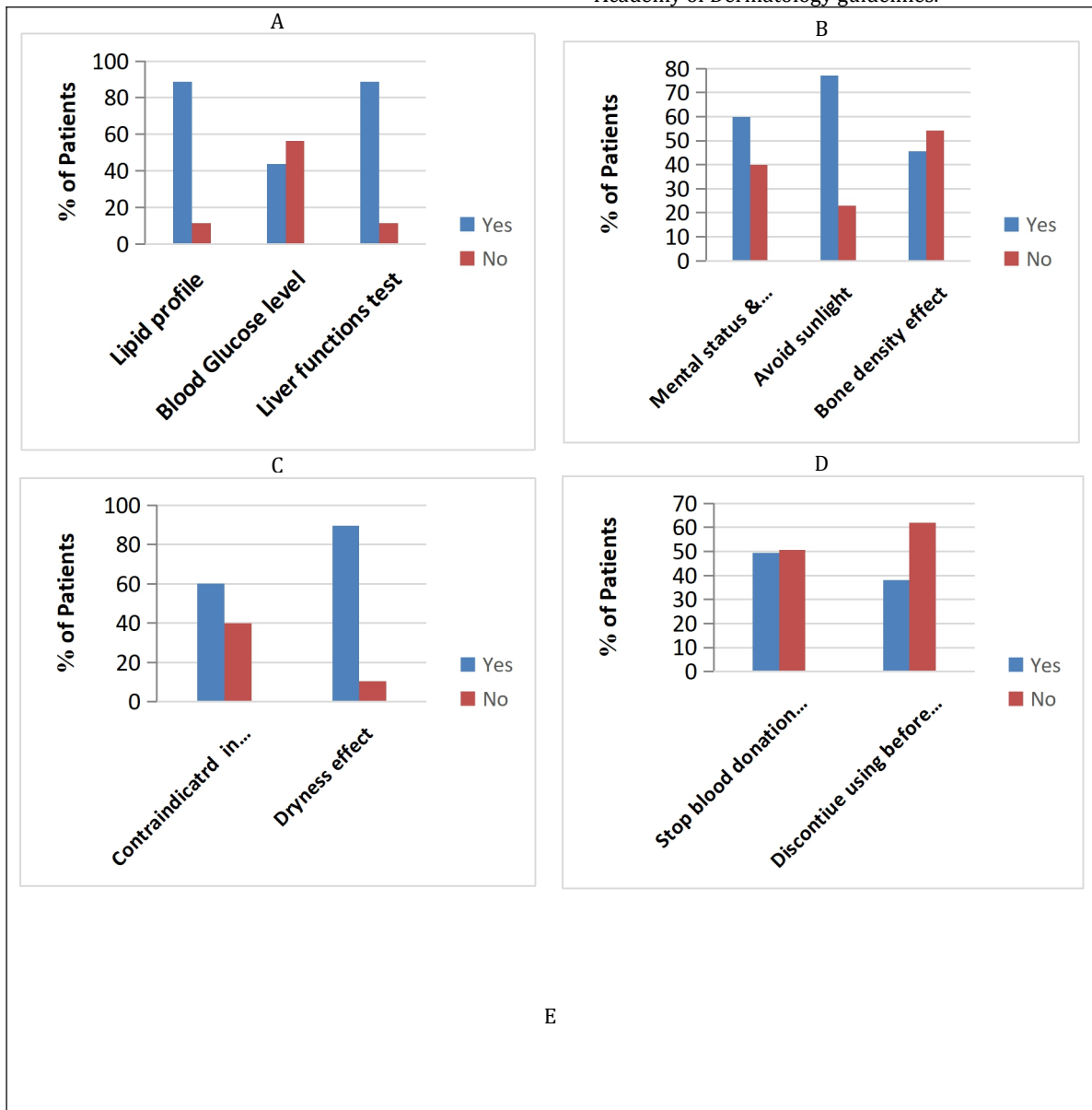
Characteristics	N (%)
Gender	
Male	24 (22.9%)
Female	81 (77.1%)
Age groups	
12-22 years	49 (46.7%)
23-33 years	50 (47.6%)
34-44 years	6 (5.7%)
Isotretinoin prescribed by	
Physician	86 (81.9%)
Pharmacist	9 (8.6%)
A friend	10 (9.5%)
By yourself (online like social media)	0 (0%)
Did you know that isotretinoin can cause many long-term adverse effects?	
Yes	67 (63.8%)
No	38 (36.2%)
Acne types	
Mild: <30 blackheads and whiteheads	11 (10.5%)
Moderate: *100 blackheads and whiteheads	36 (34.3%)
Severe: Nodules (large painful red lumps)	38 (36.2%)
More severe: Pigmented macules (dark marks from old spots, mostly affecting those with dark skin) or scars	20 (19%)

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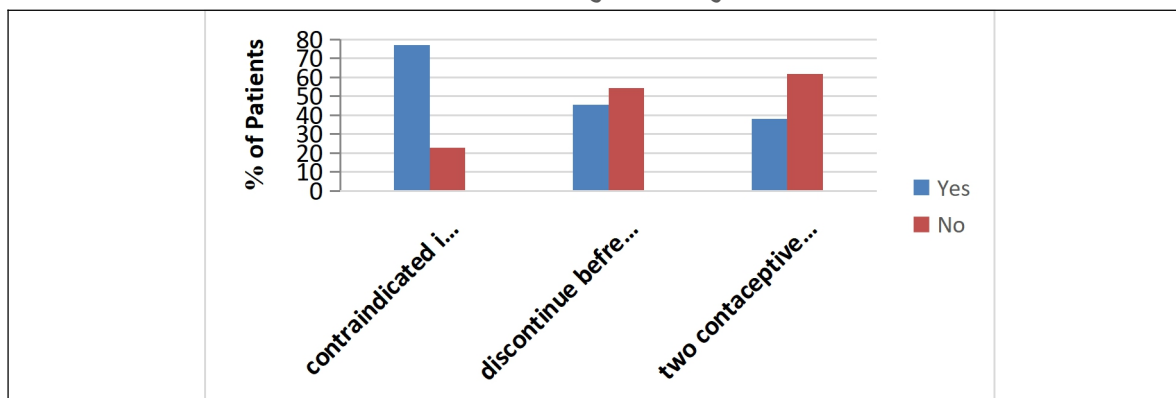
How long you continued to take isotretinoin? 1-2 months 3-5 months 6-8 months 9-12 months	25 (23.8%) 42 (40%) 29 (27.6%) 9 (8.6%)
As a patient, do you feel you were provided sufficient information about isotretinoin? Yes No	93 (88.6%) 12 (11.4%)
Did the physician take a blood sample to measure the lipid profile before prescribing isotretinoin? Yes No	93 (88.6%) 12 (11.4%)
Did the physician take a blood sample to measure liver enzymes before prescribing isotretinoin? Yes No	93 (88.6%) 12 (11.4%)
Did the physician take a blood sample to measure the glucose level before prescribing isotretinoin? Yes No	46 (43.8%) 59 (56.2%)

Figure 1

Results of the questionnaire including side effects and contraindications according to current American Academy of Dermatology guidelines.



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DISCUSSION

Isotretinoin is such an effective drug, not only does it clear acne in almost all patients, long-term remission can be achieved in 70% to 80% of patients with a single course [Rademaker, 2013].

This is the first survey in Dawadmi region which was aimed to assess the knowledge and awareness of acne patients about Isotretinoin. In this study, majority of patients were female 81 (77.1%), while 24 (22.9%) were male, indicating that female patients were more susceptible to experience acne, especially in adulthood which is comparable to other studies in Saudi Arabia [Younis and Al-Harbi, 2018; Alharbi and Kokandi, 2017]. Through adulthood, sharp rise in level of hormones, cause acne formation, and the existence of other diseases such as polycystic ovary syndrome (PCOS) will affect the occurrence of acne [Skroza et al., 2016]. Many factors can increase the severity of acne; sensitive skin, lifestyle-related stress, discontinuation of oral contraceptives, and using full-coverage foundations [Chlebus and Chlebus, 2017].

There is improvement about patient counselling in comparable to other studies in Saudi Arabia that only 12 (11.4%) of the patients felt that they were not provided with adequate information about isotretinoin use [Younis and Al-Harbi, 2018]. As isotretinoin has several adverse effects and contraindications, all patients taking it should be well informed about every aspect of this drug where the AAD guidelines specially mention that "it should be used in severe acne, or if there is resistance". The low percentage (10.5%) of patients treated with isotretinoin were having only mild acne that means improvement in awareness regarding isotretinoin use in comparable to other studies in Saudi Arabia [Younis and Al-Harbi, 2018], 42 (40%) of patients were using isotretinoin with the usual course duration, which is from 4 to 5 months. Concerning physician practice, 12 (11.4%), answered that their physicians did not ask them to measure lipid profile or liver function test and high percentage of patients (56.2%) were not asked to check glucose level before treatment. So, we need to motivate physicians apply the guideline and carry out these important blood tests. Affecting the patient's mental state is one of the important side effects of isotretinoin. Most facial acne patients show a relatively higher degree of depression, particularly women patients in whom the acne course is longer, so psychological care should be considered to improve the treatment and quality of life [Kang et al., 2015].

According to our study, 42 (40%) of the patients did not know that isotretinoin can affect the mental state, although it is high percentage but there is little improve

in comparable to other studies in Saudi Arabia [Younis and Al-Harbi, 2018; Albadr et al., 2019] and that it is contraindicated for depression patients. In addition, isotretinoin is completely contraindicated for patients who have depression. Somewhat lower percentage (22.9%) of patients compared to other studies did not know that they should avoid direct sunlight as isotretinoin affects the skin pigmentation rate [Younis and Al-Harbi, 2018]. Only 11 (10.5%) of the patients did not know that isotretinoin might cause skin dryness. So, patients counselling regarding this effect needed to be covered and ask patients to moisture their skin. Furthermore, 94 (89.5%) knew that isotretinoin is contraindicated in pregnancy, but only 11 (34.4%) of married women are using two contraceptive tools during using isotretinoin, and 31 (29.5%) did not know that they must discontinue the drug at least one month before conception. Unfortunately, 83 (79%) of the patients did not know that isotretinoin is contraindicated for people who have irritable bowel syndrome and 57 (54.3%) of the patients did not know that isotretinoin may decrease bone density causing osteoporosis, which is an important adverse effect that may affect life later. Finally, 53 (50.5%) of the patients did not know that they should not donate blood during isotretinoin use, and 65 (61.9%) of the patients did not know that they should discontinue isotretinoin before blood donation. So, we need to pay more attention regarding this issue.

CONCLUSION AND RECOMMENDATION

This study shows that acne patients are not sufficiently aware of the convenient use of isotretinoin. Therefore, greater attention should be allocated on educating physicians and pharmacists to improve the safe use of isotretinoin. We recommend applying more effective regulations to restrict non-prescribed isotretinoin dispensing and also following guidelines toward prescribing isotretinoin in KSA.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

REFERENCES

*Knowledge And Awareness Of Acne Patients About Isotretinoin Use And Safety In
Dawadmi Governorate, Riyadh Region, Saudi Arabia*

1. Albadr, Thuraya, et al., 2019. "Knowledge and use of isotretinoin in Saudi female college students: Cross-sectional study." *Journal of Dermatology and Dermatologic Surgery*, vol. 23, no. 2, p. 76.
2. AlGhamdi KM, Khurram H, Asiri YA, Mandil A, 2011. Dermatologists' level of compliance with the prescription guidelines of isotretinoin for females of childbearing potential. *Int J Dermatol* 50:1094-8.
3. Al-Harbi M., 2010. Concerns and awareness of acne patients about isotretinoin in Qassim region of Saudi Arabia. *Int J Health Sci.* 4(1):47-51.
4. Alharbi SK, Kokandi AA., 2017. Public usage of isotretinoin in Saudi Arabia: An online survey. *Int J Adv Res.* 5:260-3.
5. American Academy of Dermatology. Position statement on isotretinoin 2010. <http://www.aad.org/Forms/Policies/Uploads/PS/PS-Isotretinoin.pdf>
6. Azoulay L, Oraichi D, Berard A, 2006. Patterns and utilization of isotretinoin for acne from 1984 to 2003: is there need for concern? *Eur J Clin Pharmacol.* 62(8):667-674.
7. Bhate K, Williams HC, 2013. Epidemiology of acne vulgaris. *Br J Dermatol.*168(3):474-85. <https://doi.org/10.1111/bjd.12149>
8. Bologna J, Jorizzo J, Schaffer J., 2018. *Bologna textbook of dermatology*. London, UK: Mosby Elsevier.
9. Chlebus E, Chlebus M., 2017. Factors affecting the course and severity of adult acne. *Observational cohort study. J Dermatolog Treat.* 28(8):737-744.
10. Coughlin SS., 2015. Clarifying the purported association between isotretinoin and inflammatory bowel disease. *J Environ Health Sci.* 1(2).
11. Fakour Y., 2014. The effect of isotretinoin (RoAccutane) therapy on depression and quality of life of patients with severe acne. *Iran J Psychiatry* 9(4):237-40.
12. <https://www.fda.gov/drugs/drug-safety-and-availability/postmarket-drug-safety-information-patients-and-providers>, 2020.
13. Kang L, Liu J, An R, Huang J, Huang H, Yi Q., 2015. Depression in patients with facial acne vulgaris and the influential factors [in Chinese]. *Zhong Nan Da Xue Xue Bao Yi Xue Ban.* 40(10):1115-1120.
14. Layton A., 2009. The use of isotretinoin in acne. *Dermato-endocrinology* 1(3):162-169.
15. Rademaker M., 2013. Isotretinoin: dose, duration and relapse. What does 30 years of usage tell us? *Australas J Dermatol.* 54(3): 157-162.
16. Rashtak S, Khaleghi S, Pittelkow MR, Larson JJ, Lahr BD, Murray JA., 2014. Isotretinoin exposure and risk of inflammatory bowel disease. *JAMA Dermatol.* 150(12):1322-1326.
17. Rogers D, Pies R., 2008. General medical drugs associated with depression. *Psychiatry (Edgmont)* 5(12):28-41.
18. Skroza N, Tolino E, Proietti I, et al., 2016. Women and acne: any difference from males? A review of the literature. *G Ital Dermatol Venereol.* 151(1):87-92.
19. Suuberg A, 2019. Psychiatric and developmental effects of isotretinoin (Retinoid) treatment for acne vulgaris. *Curr Ther Res Clin Exp.*; 90:27-31. Published 2019 Feb 10. <https://doi.org/10.1016/j.curtheres.2019.01.008>
20. Tripathi SV, Gustafson CJ, Huang KE, Feldman SR, 2013. Side effects of common acne treatments. *Expert Opin Drug Saf.* 12:39-51.
21. Younis NS, Al-Harbi NY., 2018. Public understanding and awareness of isotretinoin use and safety in al Ahsa, Eastern Saudi Arabia. *Ther Innov Regul Sci.* 5:529-679.
22. Zaenglein AL, Pathy AL, Schlosser BJ, et al., 2016. Guidelines of care for the management of acne vulgaris. *J Am Acad Dermatol* 74(5):945-973.e933.