


# Dermatologists' Knowledge and Attitudes Toward Dry Eye Disease, Refractive Surgery, and Contact Lenses When Prescribing Isotretinoin in Saudi Arabia

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**Purpose:** This study assesses the knowledge and attitudes of dermatologists in Saudi Arabia with regard to dry eye disease, refractive surgery, and contact lenses when prescribing isotretinoin.

**Methods:** A total of 150 dermatologists from major cities in Saudi Arabia were included in this cross-sectional study. Data were collected through a consent interview questionnaire.

**Results:** Of the 150 dermatologists who participated, 77 (51.3%) were men. Seventy-three (48.3%) dermatologists always prescribed isotretinoin to patients and 71 (47.3%) sometimes prescribed it. One hundred forty-six (97.3%) dermatologists self-reported their awareness of the ocular side effects of the drug. One hundred twenty (80.0%) responded that it was not important to refer patients to an ophthalmologist for an eye examination before starting the isotretinoin course. Lubricant eye drops were routinely prescribed by 96% of the respondents during the isotretinoin course. Fifty (33.3%) dermatologists rarely or never asked patients about recent refractive surgery before starting the isotretinoin course. Sixty-six (44%) dermatologists rarely or never warned their patients to avoid refractive surgery for at least 6 months after the isotretinoin course is completed. One hundred ten (73.3%) dermatologists always informed their patients of contact lens intolerance as a result of isotretinoin use.

**Conclusion:** Almost all participants prescribed lubricant eye drops routinely. Most participants self-reported their knowledge regarding the ocular side effects of isotretinoin; however, more than a third did not inquire about recent refractive surgery before starting the course, and less than half did not warn patients not to undergo refractive surgery 6 months after the end of the course. This demonstrates that a significant proportion of dermatologists do not follow the appropriate practices with respect to refractive surgery when they prescribe isotretinoin. Improving the dermatologists' awareness regarding isotretinoin prescription practice is essential with respect to laser refractive surgery to prevent ocular damage.

**Keywords:** dry eyes, ocular manifestations, ophthalmic side effects, awareness, practice

## Introduction

Acne vulgaris is the most common skin disease.<sup>1</sup> Oral isotretinoin is commonly prescribed for severe acne as a first-line treatment.<sup>1</sup> Dermatologists need to be aware of the severe ocular side effects associated with the use of isotretinoin, including dry eye disease, meibomian gland dysfunction, blepharitis/conjunctivitis, decreased dark adaptation, corneal opacities, and decreased tolerance to contact lenses.<sup>2</sup> Many

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patients who use isotretinoin are between 18 and 30 years of age, which is a population that is prone to acne and overlaps the population that will consider wearing contact lenses and/or having laser refractive surgery to improve their vision.<sup>3</sup>

As with any surgical procedure, refractive surgery has side effects, of which dry eye is the most common, usually lasting for a few months.<sup>4</sup> Because dry eye may become worse with the use of isotretinoin, it should not be started if the patient has undergone laser refractive surgery within the previous 6 months.<sup>3,5</sup> Dermatologists commonly prescribe isotretinoin; therefore, they should screen for laser refractive surgery within the previous 6 months before starting the course. Moreover, the use of isotretinoin should be stopped for at least 6 months before undergoing laser refractive surgery to decrease further ocular complications, such as corneal ulceration, infection, and loss of vision.<sup>3,5</sup> Patients who may be considering refractive surgery or wearing contact lenses should be advised before the course is started.

Dermatologists' knowledge and attitudes regarding the ocular side effects of isotretinoin have never been studied. The aim of this study is to assess the knowledge and attitudes of dermatologists in Saudi Arabia with respect to dry eye disease, refractive surgery, and contact lenses when prescribing isotretinoin.

## Methods

A cross-sectional study was conducted among dermatologists in major cities around Saudi Arabia. The study was approved by the Biomedical Ethics Research Committee at King Abdulaziz University, Jeddah, Saudi Arabia. A structured questionnaire was conducted in January and February 2017 to assess dermatologists on their knowledge and attitudes with respect to dry eye disease, refractive surgery, and contact lenses when prescribing isotretinoin. The questionnaire was validated through consultation with a panel of experts in ophthalmology and dermatology. The target sample was 150 dermatologists and included dermatologists who work in military or National Guard hospitals, academic governmental hospitals, Ministry of Health governmental hospitals, and private clinics or hospitals in Saudi Arabia. Consent was obtained from dermatologists before initiating the questionnaire.

Data were collected through paper questionnaires, electronic surveys, and personal interviews. Some limitation in data collection was predicted, including the absence of a database of dermatologists, refusal to answer the questionnaire, and the small number of dermatologists in each city around Saudi Arabia. Statistical analysis was performed with the Statistical

Package for Social Sciences version 21.0 for Windows (SPSS Inc., Chicago, IL, USA). The Chi-square test was used.

## Results

A total of 150 dermatologists were included in this study, of whom 77 (51.3%) were men and 73 (48.7%) were women. The sample consisted of 86 board-certified dermatologists (57.3%), 47 (31.3%) dermatology residents, and 17 (11.3%) board-eligible dermatologists. Tables 1 and 2 show the types of health institutions and the cities in which the practices were based for the dermatologists who participated in the study.

Isotretinoin was prescribed for patients always, sometimes, rarely, and never by 73 (48.7%), 71 (47.3%), 5 (3.3%), and 1 (0.7%) dermatologists, respectively. Of

**Table 1** Type of Health Institution in Which the Dermatologists Who Participated in the Study Practice

	Frequency	Percentage
Academic Governmental Hospital	51	34.0%
Private Clinic/Hospital	42	28.0%
MOH Governmental Hospital	32	21.3%
Military or National Guard Hospital	25	16.7%
Total	150	100.0%

**Table 2** Cities in Which the Dermatologists Who Participated in the Study Practice

	Frequency	Percentage
Riyadh	56	37.3%
Jeddah	47	31.3%
Khobar	12	8.0%
Taif	11	7.3%
Dammam	10	6.7%
Makkah	5	3.3%
Madinah	3	2.0%
Abha	3	2.0%
Al-Qassim	1	0.7%
Yanbu	1	0.7%
Jazan	1	0.7%
Total	150	100.0%

150 dermatologists, 146 (97.3%) answered “yes” to the question “Do you know the ocular side effects of isotretinoin?”, and 139 (92.7%) informed their patients that isotretinoin may cause ocular adverse effects, including dry eyes and keratitis. However, 120 (80.0%) dermatologists did not believe that it is important to refer patients to an ophthalmologist for an eye examination when starting an isotretinoin course. Of the 150 dermatologists, 64 (42.7%) never refer patients to an ophthalmologist when prescribing isotretinoin and 42 (28.0%) rarely do.

One hundred ten (73.3%) dermatologists knew that starting an isotretinoin course is not recommended if the patient had recently undergone refractive surgery and 40 (26.7%) dermatologists were unaware. With regard to asking patients about recent refractive surgery before starting the isotretinoin course, 59 (39.3%), 41 (27.3%), 20 (13.3%), and 30 (20%) dermatologists responded always, sometimes, rarely, and never, respectively. Eighty-four (56%) dermatologists always or sometimes warn patients to avoid refractive surgery for 6 months after finishing the course, whereas 66 (44%) rarely or never warn patients not to undergo refractive surgery for at least 6 months after finishing the course.

One hundred thirty-four (89%) dermatologists knew that isotretinoin can cause contact lens intolerance, and 16 (10.7%) were unaware. When asked if they informed their patients that isotretinoin may cause discomfort when wearing contact lenses and that the discomfort might be severe enough to stop them from wearing contact lenses during the isotretinoin course, 110 (73.3%), 33 (22%), and 7 (4.7%) dermatologists always, sometimes, and rarely or never did, respectively. One hundred forty-four (96%) dermatologists always or sometimes prescribed lubricant eye drops and 6 (4%) rarely or never did.

## Discussion

Isotretinoin (13-cis-retinoic acid) is the treatment of choice for severe acne.<sup>1</sup> Previous studies reported several ocular side effects in the use of isotretinoin.<sup>1,2,6</sup> Almost all dermatologists who completed the survey were aware that dry eye disease is a common ocular adverse effect of isotretinoin and prescribed lubricant eye drops.

In this survey, most dermatologists reported that they never refer their patients to an ophthalmologist. Because there is no clear universal recommendation to do so either before or during the isotretinoin course, many dermatologists seemed to take the approach that as long as the patient is prescribed lubricant drops, instructed about the importance

of its use regularly during the isotretinoin course, and is asymptomatic, it is likely acceptable not to refer the patient to an ophthalmologist. However, it is essential to refer the patient to an ophthalmologist before starting isotretinoin if the patient is known to have severe dry eye disease and during the isotretinoin course if the patient develops symptoms, such as unresponsive dry eye, ocular pain, decreased vision, reduced night vision, visual field alterations, color perception alterations, chalazion, and hordeolum.<sup>6</sup>

Laser refractive surgery is a very common procedure in persons between 18 and 30 years of age. This overlaps with the population of patients with acne, whose average age is 24 years.<sup>3,7</sup> The most common adverse effect of laser refractive surgery is dry eye disease that usually persists for a few months.<sup>4</sup> Dry eye disease may worsen with the use of isotretinoin; therefore, it should not be started if the patient has undergone laser refractive surgery within the previous 6 months.<sup>3,5</sup> In our study, 33% of dermatologists did not screen for recent refractive surgery before starting isotretinoin. Moreover, the use of isotretinoin should be stopped for at least 6 months before laser refractive surgery to decrease further ocular complications, such as corneal ulceration, infection, and vision loss.<sup>3–5</sup> Due to its serious effects, dermatologists need to be aware of patients who are considering laser refractive surgery before starting isotretinoin and warn them. In our study, 44% of dermatologists did not inform their patients to avoid laser refractive surgery in the 6 months after stopping isotretinoin. This demonstrates that a significant proportion of dermatologists do not follow the appropriate practices with regard to laser refractive surgery when they prescribe isotretinoin.

Our survey showed that most dermatologists tell their patients that isotretinoin causes contact lens intolerance.

To the best of our knowledge, no study has assessed the awareness level and practice patterns regarding the ocular adverse effects of isotretinoin among dermatologists despite the frequent prescription of the medication. Most studies have investigated the public awareness and their concerns regarding isotretinoin.<sup>8,9</sup> More research is required for evaluating the knowledge and attitudes of dermatologists across the world with respect to the ocular adverse effects of isotretinoin to ensure safe practice patterns.

## Conclusion

Almost all participants prescribed lubricant eye drops routinely. The majority did not think that referring patients to

an ophthalmologist was important for dry eye disease detection and treatment. Most participants self-reported their knowledge of the ocular adverse effects of isotretinoin; however, more than a third did not inquire about recent laser refractive surgery before starting the course, and less than half did not warn patients not to undergo laser refractive surgery 6 months after the end of the course. This demonstrates that a significant proportion of dermatologists do not follow the appropriate practices with respect to refractive surgery when they prescribe isotretinoin. Improving the dermatologists' awareness regarding isotretinoin prescription practice is essential with respect to laser refractive surgery to prevent ocular damage.

## Ethics Approval and Consent to Participate

Written informed consent was obtained from all participants. The study was approved by the Biomedical Ethics Research Committee at King Abdulaziz University, Jeddah, Saudi Arabia and was conducted in accordance with the ethical standards of the Declaration of Helsinki (Reference No 420-16).

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## Disclosure

The authors report no conflicts of interest in this work.

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