

Knowledge levels and concerns about oral isotretinoin treatment in the parents of adolescent acne patients

Asude Kara Polat¹, MD; Asli Akin Belli², Associate Prof.; Ecem Zeliha Ergun¹, MD; Vildan Manav Bas¹, MD; Duygu Erdil¹, MD; Ayse Esra Koku Aksu¹, Associate Prof.; Mehmet Salih Gurel³, Prof.

¹Department of Dermatology, University of Health Sciences, Istanbul Training and Research Hospital, Istanbul

²Department of Dermatology, Çakmak Erdem Hospital, Istanbul

³Department of Dermatology, Medeniyet University, Göztepe Training and Research Hospital, Istanbul

Corresponding author: Asude Kara Polat MD, Istanbul Training and Research Hospital, Department of Dermatology, Kasap İlyas Mah. Org. Abdurrahman Nafiz Gürman Cd. PK: 34098, Istanbul, Turkey.

Phone number: +905052512142, Fax: +9002126320060, E-mail: asudekara@yahoo.com.tr

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Abstract

Oral isotretinoin is frequently used in the treatment of young acne patients. However, knowledge levels and attitudes about this treatment have not been studied in the parents previously. We aimed to investigate the knowledge levels and concerns about oral isotretinoin in the parents of adolescent acne patients. We conducted a cross-sectional study on 136 parents of adolescent patients with moderate to very severe acne vulgaris who answered the questionnaire about oral isotretinoin treatment. Demographic data and acne characteristics were recorded. The parents' knowledge levels and concerns about the treatment process were asked by the questionnaire. Since 32 parents have never heard oral isotretinoin before, they were excluded from the study. Of the remaining 104 parents, 80.8% were female and 19.2% were male. Of the parents, 62.5% had some concerns about oral isotretinoin treatment and 34.6% had no idea whether the drug is suitable for the use of <18 years. 52.9% stated that they think the drug will damage the liver. The most known and worrying side effects were dry lips and vision problems, respectively. The knowledge levels about oral isotretinoin treatment and its side effects were low in the parents of adolescent acne patients, leading to prejudice to the drug.

Keywords: acne; adolescent; isotretinoin; knowledge; parents

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INTRODUCTION

Acne vulgaris is a multifactorial inflammatory disease of the pilosebaceous unit. Abnormal follicular hyperproliferation, increase in serum production in sebaceous follicles, *Propionibacterium acnes* proliferation, and inflammation play key roles in the development of acne (Gebauer, 2017). The disease is very common especially in the adolescent period that the frequency ranges from 35 to 90 percent (Al-Saeed, Al-Dawood, Bukhari, & Bahnassy, 2006; Bagatin et al., 2014; El-Hamd, Nada, Moustafa, & Mahboob-Allah, 2017; Hanisah, Omar, & Shah, 2009; Kilkenny, Merlin, Plunkett, & Marks, 1998; Law, Chuh, Lee, & Molinari, 2010; Smithard, Glazebrook, & Williams, 2001). Since the disease progresses with remission and relapses, as well as tends to leave scars, the psychological effects such as anxiety and depression emergence in acne patients (Ataseven, Öztürk, & Dilek, 2013; Uslu et al., 2008).

In the treatment of acne, whereas topical agents are usually preferred for mild disease, oral antibiotics and oral isotretinoin are used in moderate to severe disease. Oral isotretinoin, a retinoid derivative, suppresses sebum production and acts on all pathogenic factors playing a role in the formation of acne (Ahmad, 2015). There are many studies evaluating the side effects of oral isotretinoin, particularly on laboratory parameters of the patients (Ahmad, 2015; Ataseven et al., 2013; Brzezinski, Borowska, Chiriac, & Smigielski, 2017; Karadağ, Çalka, & Akdeniz, 2011; Polat et al., 2008; Vieira, Beijamini, & Melchior, 2012). Further, the effects of oral isotretinoin on anxiety levels and depression, as well as the awareness status about the drug in the patients have been examined widely (Al-Harbi, 2010; Ferahbas et al., 2004; Kaymak, Taner, & Taner, 2009; Lopez et al., 2016; Younis & Al-Harbi, 2019).

However, to the best of our knowledge, there are no studies evaluating the knowledge levels and concerns about oral isotretinoin treatment in the parents of adolescent acne patients.

In our study, we sought to investigate the knowledge levels, attitudes, and concerns about oral isotretinoin treatment in the parents of acne patients with moderate to severe acne vulgaris who were under 18 years old.

MATERIALS AND METHODS

We conducted a cross-sectional study on 136 parents of adolescent patients with moderate to very severe acne vulgaris who answered to the questionnaire which created by us about oral isotretinoin treatment between April and August 2019 in the pediatric dermatology outpatient clinic of tertiary hospital. Prior to the study, ethic committee approval was obtained from University of Health Sciences, Istanbul Training and Research Hospital. Acne vulgaris diagnosis and severity were based on the criteria of Global Acne Severity Scale (GEA Scale) (Dreno et al., 2011). We used a non-validated questionnaire in the study and the questionnaire was created mainly from the questions that frequently asked by our patients and their families about the side effects of oral isotretinoin. The inclusion criteria were as follows: agree to the participate in the study and having a child aged <18 years who was planned to use oral isotretinoin for his / her acne vulgaris. The exclusion criteria were as follows: refuse to participate in the study and parents who never heard oral isotretinoin treatment previously. The participants were selected consecutively from the parents who meet the inclusion criteria. Parents participated in the study were the parents of different patients and only one parent (mother or father) from the same family was included in the study.

Demographic data of the patients and parents (age and gender), acne severity and localization, and education levels of the parents were recorded.

The parents' knowledge levels and information sources about oral isotretinoin treatment were asked by the questionnaire. In addition, they were asked about the possible side effects of oral isotretinoin treatment and thus, their concerns related to this treatment.

"SPSS 26.0 program" was employed in the statistical analysis of the study. Median, interquartile range, and frequency were used for the descriptive statistics of the data. The distribution of variables was measured by the Kolmogorov-Smirnov test. Since all variables distributed as non-normally, Mann-Whitney U-test was used for the analysis of quantitative data. In the analysis of qualitative independent data, the chi-square test was used. P values < 0.05 were assessed as significant.

RESULTS

Since 32 parents stated they have never heard oral isotretinoin treatment, they were excluded from the study and statistical analysis at the beginning of the study. Of the remaining 104 parents, 84 [80.8%; age range 31-57 years, median 42.5 (6)] were female and 20 [19.2%; age range 38-63 years, median 44.5 (6)] were male. Of 104 acne patients, 64 [61.5%; age range 13-17 years, median 16 (2)] were girls and 40 [38.5%; age range 13-17 years, median 15 (2)] were boys (**Table 1**). Of the patients, 67 (64.4%) stated that they took their decision alone to consult a doctor for acne, 14 (13.5%) took the decision together with their family, and 18 patients (17.3%) took the decision at the insistence of their family. The siblings of six acne patients had received oral isotretinoin treatment previously.

Physicians (33.7%) were the most common knowledge sources about oral isotretinoin treatment in the parents. Whereas 44 parents (42.3%) stated they would not prefer to use oral isotretinoin in the treatment of their child's acne, 54 (51.9%) stated they would prefer (**Table 2**).

When the parents' concerns were questioned, 65 parents (62.5%) stated that they have some worries about oral isotretinoin treatment and 36 parents (34.6%) noted they thought the drug is not suitable for use under the age of 18 (**Table 2**). According to the age, gender, and educational status of the parents, there was no significant difference between the parents to have or not have any concerns about oral isotretinoin ($P > 0.05$). Similarly, the thought of whether oral isotretinoin is suitable for the patients under 18 years was not significantly different between the parents according to age, gender, and educational status ($P > 0.05$). Fifty-five parents (52.9%) stated that they think the drug will damage the liver, 8 (7.7%) stated that the drug can cause depression, and 22 (21.2%) noted that school success can be affected negatively with this drug (**Table 2**).

Regarding the treatment process, 66 parents (93.3%) stated the treatment duration is 6 months with oral isotretinoin. Whereas 48 parents (46.2%) stated that acne scars will completely improve, 39 parents (37.5%) noted that acne can recur after the completion of treatment. Opinions of the parents about the treatment process were demonstrated in (**Table 2**).

The most known side effects by the parents were dry lips (89.4%), facial rash (55.8%), and dry eyes (51.9%) (**Table 3**). Side effects most concerned about its emergence in the treatment process by the parents were vision problems (20.2%), an increase of cholesterol levels (19.2%), and nose bleeding (19.2%) (**Table 4**).

DISCUSSION

Although oral isotretinoin is a commonly used drug in the treatment of young acne patients, knowledge levels and concerns about oral isotretinoin treatment have almost never been examined in the parents of adolescent acne patients. We evaluated attitudes and concerns about oral isotretinoin treatment in 104 parents of adolescent acne patients. In our study, the

majority of the parents noted to have some concerns about oral isotretinoin treatment and had no idea whether the drug is suitable for the use of <18 years. Approximately half of the parents stated they think the drug will cause liver damage. The most known side effects related to the treatment were dry lips, facial rash, and dry eyes. Additionally, the vision problem that emerges in the treatment process was the most concerning side effect by the parents.

Oral isotretinoin is almost the most important treatment option in acne by acting on all pathogenic factors involved in acne formation (Ataseven et al., 2013). The treatment duration ranges from 4 to 6 months depending on the daily dose given ("Patient perspectives: treating acne with isotretinoin," 2015). Knowledge levels about oral isotretinoin treatment have been examined in acne patients, rather than the parents, in several studies.^{18,20} Al-Harbi M. *et al.* have reported that 76.7% of acne patients have heard the oral isotretinoin treatment previously and their main information sources about the drug were physicians, followed by the other acne patients (Al-Harbi, 2010). In our study, information sources of the parents about the oral isotretinoin treatment were doctors, own children, and friends, respectively. Of the parents, 93.3% had the knowledge of a 6 months treatment period with oral isotretinoin for acne. However, 65.4% of them had no idea how many times oral isotretinoin can be used. During the use of oral isotretinoin, it is recommended to ensure protection from the sun. Younis et al. stated that 63.7% of the participants did not think isotretinoin can cause sunburns (Younis & Al-Harbi, 2019). In our study, 73.1% of the parents emphasized the need for sun protection during the treatment.

Awareness of acne patients about acne and its treatment has been examined in the diverse studies (Al-Harbi, 2010; Lopez et al., 2016; Uslu et al., 2008; Younis & Al-Harbi, 2019). Lopez *et al.* have conducted a study on adolescent patients with mild to moderate acne and their parents. They have compared the Hispanic and non-Hispanic parents regarding the

awareness in acne and acne treatment. Hispanic parents have thought that their children should be taken to a healthcare professional for treatment more often than non-Hispanic parents (Lopez et al., 2016). In our study, 64.4% of the patients stated that they took their decision alone to consult a doctor for acne and only 13.5% took the decision together with their family. These findings suggest that awareness of the parents was not as high as their children about the need for medical treatment in acne and this may cause delay in applying to medical consult.

Oral isotretinoin has many known side effects and thus, patients may have difficulties in adapting treatment (Al-Harbi, 2010; Brzezinski et al., 2017). In our study, 42.3% of the parents stated they would not prefer to use oral isotretinoin in the treatment of their child's acne. In the study of Al Harbi *et al.*, 63% of people knew about the side effects of oral isotretinoin. Teratogenicity and dryness were among the best-known side effects (Al-Harbi, 2010). Since our study covers patients in the adolescent period, no questions about teratogenicity were asked to the parents in the current study. Younis *et al.* have reported that the society in their study was not aware of the correct use and side effects of isotretinoin (Younis & Al-Harbi, 2019). In our study, the most known side effects of oral isotretinoin by the parents were dry lips, facial rash, and dry eyes, respectively. However, side effects most concerned about its emergence in the treatment process by the parents were vision problems, an increase of cholesterol levels, and nose bleeding. Additionally, the majority of parents had no idea some of the side effects of oral isotretinoin involving bowel habit changes, ingrown nails, vision problems, abdominal pain, arthralgia, menstrual irregularity, and increased hairiness. Myalgia can also emergence with the treatment and become more evident with intense exercise (Al-Harbi, 2010; Brzezinski et al., 2017). However, 37.5% of parents stated that their children could exercise heavily while using the drug.

Side effects of systemic isotretinoin on laboratory parameters and anxiety levels also have been studied in diverse studies widely (Ahmad, 2015; Ataseven et al., 2013; Brzezinski et al., 2017; Ferahbas et al., 2004; Karadağ et al., 2011; Kaymak et al., 2009; Polat et al., 2008; Vieira et al., 2012). In our study, 55 parents (52.9%) stated they thought the drug will damage the liver and 42 (40.4%) stated that the drug can increase the cholesterol levels. In addition, 55.8% of parents noted check of the blood tests is necessary every month during the treatment. Regarding the psychological side effects of oral isotretinoin, only 8 parents (7.7%) stated that oral isotretinoin can cause depression and 22 parents (21.2%) thought that school success can be affected negatively because of the drug use.

Our limitations were the relatively low number of participants and using a non-validated questionnaire in the study. Another important limitation was including only Turkish people and consequently, the failure of generalized of the study. Due to the different cultural structures and changes in access to the internet, the level of anxiety and knowledge about oral isotretinoin treatment can vary in different regions of the world, and even in different regions of our country.

CONCLUSION

Our study showed that the levels of knowledge about oral isotretinoin treatment and its side effects were generally inadequate in the parents of adolescent patients with moderate to very severe acne. Further, almost half of the parents had a prejudice regarding the use of oral isotretinoin for their children. The frequency of parents who do not have any idea about the possible side effects of oral isotretinoin was also relatively high. To the best of our knowledge, there is no study evaluating the knowledge levels and awareness about oral isotretinoin treatment in the parents of young acne patients. Besides acne patients, parents of the young acne patients also should be accurately and adequately informed about the correct

use and particularly common and important side effects of oral isotretinoin. By informing correctly, unnecessary worries about the drug may decrease, the treatment is not delayed by the parents in patients especially those who have severe acne, and families can cope with the side effects successfully.

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CONFLICT OF INTEREST: The authors declare that there is no conflict of interest.

TABLE 1. Sociodemographic and clinical features of acne patients and their parents

	n (%) or median (IR)
Gender (Patients)	
<i>Female</i>	64 (61.5%)
<i>Male</i>	40 (38.5%)
Median age of the patients (years)	16 (2)
Acne severity	
<i>Moderate</i>	32 (30.8%)
<i>Severe</i>	52 (50.0%)
<i>Very severe</i>	20 (19.2%)
Number of visits to a dermatologist in the past 6 months	
0	39 (37.5%)
1	25 (24.0%)
2	25 (24.0%)
≥ 3	15 (14.5%)
Whether he/she received any treatment for acne previously	
Yes	94 (90.4%)
No	10 (9.6%)
If yes, which treatment options he/she used before	
<i>Only topical agents</i>	53 (51.0%)
<i>Only oral antibiotic</i>	10 (9.6%)
<i>Topical agent + oral antibiotic</i>	24 (23.1%)
<i>Only oral isotretinoin</i>	1 (1.0%)
<i>Oral isotretinoin + topical agents</i>	1 (1.0%)
<i>Oral isotretinoin + oral antibiotic + topical agents</i>	5 (4.8%)
Gender (Parents)	
<i>Female</i>	84 (80.8%)

<i>Male</i>	20 (19.2%)
Median age of the parents (years)	43 (6)
Educational levels of the parents	
<i>Primary school</i>	43 (41.3%)
<i>Secondary school</i>	15 (14.4%)
<i>High school</i>	36 (34.6%)
<i>University</i>	10 (9.6%)

IR- Interquartile Range.

TABLE 2. Answers of the parents to the questions related to oral isotretinoin treatment

Questions	n (%)
Where did you first hear oral isotretinoin treatment from?	
<i>Physicians</i>	35 (33.7%)
<i>Own children</i>	26 (25.0%)
<i>Friends</i>	22 (21.1%)
<i>Relatives</i>	13 (12.5%)
<i>Other children</i>	5 (4.8%)
<i>Internet</i>	3 (2.9%)
Would you prefer to use oral isotretinoin in the treatment of acne for your child?	
<i>Yes</i>	54 (51.9%)
<i>No</i>	44 (42.3%)
<i>I don't know</i>	6 (5.8%)
Do you have concerns about your child who will start oral isotretinoin treatment?	
<i>Yes</i>	65 (62.5%)
<i>No</i>	39 (37.5%)
Do you think oral isotretinoin is suitable for use <18 years?	
<i>Yes</i>	26 (25.0%)
<i>No</i>	36 (34.6%)
<i>I don't know</i>	42 (40.4%)
Do you think oral isotretinoin treatment will damage the liver?	
<i>Yes</i>	55 (52.9%)
<i>No</i>	8 (7.7%)
<i>I don't know</i>	41 (39.4%)
Do you think oral isotretinoin causes depression?	
<i>Yes</i>	8 (7.7%)
<i>No</i>	21 (20.2%)
<i>I don't know</i>	45 (43.3%)

Do you think that your child's school success can be affected while using oral isotretinoin? <i>Yes</i> <i>No</i> <i>I don't know</i>	22 (21.2%) 44 (42.3%) 38 (36.5%)
How long is the acne treatment with oral isotretinoin? <i>1 month</i> <i>3 months</i> <i>6 months</i> <i>9 months</i> <i>I don't know</i>	11 (10.6%) 16 (15.4%) 66 (93.3%) 5 (4.8%) 2 (1.9%)
How much acne scars heal with oral isotretinoin treatment? <i>Completely</i> <i>Partially</i> <i>Don't improve</i> <i>I don't know</i>	48 (46.2%) 34 (32.7%) 3 (2.9%) 19 (18.3%)
Can acne recur after the completion of oral isotretinoin treatment? <i>Yes</i> <i>No</i> <i>I don't know</i>	39 (37.5%) 22 (21.2%) 43 (41.3%)
How many times can oral isotretinoin be used? <i>1 time</i> <i>2 times</i> <i>≥ 3 times</i> <i>I don't know</i>	17 (16.3%) 12 (11.5%) 7 (6.8%) 68 (65.4%)
What do you think about intense exercise with oral isotretinoin treatment? <i>No exercise should be done.</i> <i>Only light exercises can be done.</i> <i>Heavy exercise can be done.</i> <i>I don't know.</i>	20 (19.2%) 4 (3.8%) 39 (37.5%) 41 (39.4%)
Is it necessary to be protected from the sun while using oral isotretinoin? <i>Yes</i> <i>No</i> <i>I don't know</i>	76 (73.1%) 7 (6.7%) 21 (20.2%)
Is it necessary to check the blood tests every month during the treatment with oral isotretinoin? <i>Yes</i> <i>No</i> <i>I don't know</i>	58 (55.8%) 18 (17.3%) 28 (26.9%)

TABLE 3. Parents' knowledge status about side effects that can occur during the oral isotretinoin treatment

Side effects	Yes (n / %)	No (n / %)	I don't know (n / %)
<i>Dry lips</i>	93 (89.4%)	2 (1.9%)	9 (8.7%)
<i>Hair loss</i>	35 (33.7%)	20 (19.2%)	49 (47.1%)
<i>Increased hairiness (hirsutism)</i>	27 (26.0%)	18 (17.3%)	59 (56.7%)
<i>Nose bleeding (epistaxis)</i>	42 (40.4%)	19 (18.3%)	43 (41.3%)
<i>Facial rash</i>	58 (55.8%)	7 (6.7%)	39 (37.5%)
<i>Ingrown nails – Pyogenic granuloma</i>	10 (9.6%)	30 (28.9%)	64 (61.5%)
<i>Worsening of acne</i>	44 (42.3%)	28 (26.9%)	32 (30.8%)
<i>Itching</i>	41 (39.4%)	22 (21.2%)	41 (39.4%)
<i>Eczema</i>	28 (26.9%)	19 (18.3%)	57 (54.8%)
<i>Dry eyes</i>	54 (51.9%)	10 (9.6%)	40 (38.5%)
<i>Vision problems</i>	25 (24.0%)	15 (14.4%)	64 (61.5%)
<i>Headache</i>	38 (36.6%)	15 (14.4%)	51 (49.0%)
<i>Muscle pain (myalgia)</i>	38 (36.5%)	13 (12.5%)	53 (51.0%)
<i>Joint pain (arthralgia)</i>	28 (26.9%)	14 (13.5%)	62 (59.6%)
<i>Menstrual irregularity</i>	35 (33.7%)	10 (9.6%)	59 (56.7%)
<i>Bowel habit changes (diarrhea / constipation)</i>	22 (21.2%)	15 (14.4%)	67 (64.4%)
<i>Abdominal pain</i>	24 (23.1%)	16 (15.4%)	64 (61.5%)
<i>Increased cholesterol levels</i>	42 (40.4%)	14 (13.5%)	48 (46.2%)

TABLE 4. Side effects most concerned about its emergence in the oral isotretinoin treatment process by the parents

Side effects	n (%)
<i>Vision problems</i>	21 (20.2%)
<i>Increase of cholesterol levels</i>	20 (19.2%)
<i>Nose bleeding (epistaxis)</i>	20 (19.2%)
<i>Joint pain (arthralgia)</i>	15 (14.4%)
<i>Liver damage</i>	13 (12.5%)
<i>Abdominal pain</i>	5 (4.8%)
<i>Muscle pain (myalgia)</i>	4 (3.8%)
<i>Headache</i>	2 (1.9%)
<i>Depression</i>	2 (1.9%)
<i>Bowel habit changes</i>	2 (1.9%)

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