

GPs' practice and attitudes to initiating isotretinoin for acne vulgaris in Ireland:

a cross-sectional questionnaire survey in primary care

Abstract

Background

Isotretinoin is prescribed in secondary care for severe acne vulgaris. Anecdotal reports suggest that GPs in Ireland currently initiate isotretinoin.

Aim

To ascertain the prevalence and management of isotretinoin in Irish general practice and to describe GPs' attitudes about the use of isotretinoin in Ireland.

Design and setting

A cross-sectional questionnaire survey of GPs in Ireland between October 2018 and February 2019.

Method

Two short questionnaires were developed: one for GPs who prescribe isotretinoin and one for GPs who do not prescribe isotretinoin. Questionnaires were distributed via email and online via GP Forum to GPs in Ireland.

Results

Of a total 298 GPs who completed the questionnaire, 52 (17%) initiated isotretinoin. Older GPs (aged ≥ 35 years) and male GPs were more likely to prescribe isotretinoin. GPs cited prolonged dermatology waiting lists ($n = 34$, 65%) and a special interest in dermatology ($n = 31$, 60%) as two key drivers to initiating isotretinoin. However, this study found evidence of suboptimal blood monitoring, pregnancy testing, and contraceptive advice. Most GPs ($n = 246$, 83%) did not initiate isotretinoin and identified multiple barriers: medicolegal concerns ($n = 150$, 61%), being unaware that GPs may initiate isotretinoin ($n = 135$, 55%), and being unfamiliar with managing isotretinoin ($n = 102$, 41%). Important enablers to initiating isotretinoin cited by GPs include Irish College of General Practitioners guidelines ($n = 118$, 48%) and dermatologist support ($n = 119$, 48%). Two-thirds of the GPs questioned ($n = 164$, 67%) expressed an interest in initiating isotretinoin and most ($n = 223$, 91%) agreed that GPs can safely manage isotretinoin.

Conclusion

Few GPs in Ireland currently initiate treatment of acne with isotretinoin, and there is suboptimal adherence to recommended monitoring. Barriers to and enablers for GPs initiating isotretinoin were identified. Most GPs expressed an interest in initiating isotretinoin.

Keywords

acne; dermatology; general practice; isotretinoin.

INTRODUCTION

Acne vulgaris (hereafter referred to as acne) is a disease of the pilosebaceous unit and is a common, chronic, inflammatory skin condition, affecting 85% of teenagers and 12% of adult women.¹⁻⁴ Acne is the most common skin disease, and one of the most common disorders treated by dermatologists.^{2,3} In UK primary care between 2004 and 2013, there were approximately 934 000 acne consultations each year.⁵ This number of GP consultations is low, suggesting that many people do not consult a GP for acne.⁵ The management of acne in primary care is currently suboptimal.⁵

Acne is associated with significant adverse physical and psychosocial sequelae, including scarring, anxiety, depression, and suicide.^{1-3,6} Social isolation and suicidal ideation are common comorbidities of acne.⁷ Acne scarring correlates with disease severity (Figures 1 and 2), affecting up to 44% of patients, with delay initiating therapy a modifiable risk factor.⁸

Hormonal antiandrogens are effective for treating severe acne in females, but side effects including weight gain and thromboembolism are real deterrents.³ Antibiotics are widely used in acne, but may represent the tip of *'an emerging iceberg of antibiotic resistance'*.^{5,9,10}

Isotretinoin is a highly effective treatment for severe acne,^{2,3,5} and its global use is increasing.¹¹ Oral isotretinoin is

recommended as first-line treatment of severe acne.^{2,4,12,13}

The prescription of isotretinoin in the UK is currently restricted solely to consultant dermatologists.¹⁴ However, in the Netherlands, GPs are guided by national guidelines to prescribe isotretinoin.¹³ In New Zealand, GPs have prescribed isotretinoin since 2009, and in 2012 issued 58% of all isotretinoin prescriptions.^{15,16} New National Institute for Health and Care Excellence guidance for acne management was scheduled for publication in January 2021, and deferred because of the COVID-19 pandemic.¹⁷

Anecdotal reports suggest that some GPs in Ireland currently initiate isotretinoin. The Irish guidelines on management of acne are silent on the use of isotretinoin. This survey assessed the prevalence and management of isotretinoin in Irish general practice, and attitudes of GPs about using isotretinoin.

METHOD

This was a cross-sectional questionnaire survey of GPs in Ireland from October 2018 to February 2019. Two questionnaires were developed, one for GPs who initiate isotretinoin and another for GPs who do not (see Supplementary Appendix S1 for details). The design of the questionnaires was informed by current prescribing guidelines and research about isotretinoin.^{2,3,4,12} Isotretinoin is clinically highly effective,

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How this fits in

Prudent antimicrobial stewardship should inform antibiotic use in acne. Many teenagers have untreated moderate-to-severe acne, often with profound physical and psychological sequelae. Isotretinoin is a highly effective treatment for severe acne, with increasing global usage. Isotretinoin is widely recommended as first-line treatment of severe acne. GPs in some countries, including Ireland, may initiate isotretinoin. Use of isotretinoin in the UK is currently tightly restricted solely to hospital dermatologists. This precludes initiation in UK general practice, limiting timely access to isotretinoin for people with severe acne. This study found that a significant minority, 17% ($n = 52$), of GP responders in Ireland currently initiate isotretinoin for acne vulgaris, with suboptimal blood monitoring, pregnancy testing, and contraceptive advice. Two-thirds of GPs who do not currently initiate isotretinoin expressed an interest in doing so. National primary care isotretinoin guidelines, training, dermatologist support, and resourcing were identified as key enablers to initiating isotretinoin.



Figure 1. Acne in teenager before isotretinoin.

notwithstanding common and potentially serious side effects.¹⁸ It has been suggested that isotretinoin could be safely initiated and monitored in primary care.¹⁹ Both questionnaires were piloted by three GPs. All questions offered 'fixed' choice responses, and some questions also enabled GPs to provide free-text information (Supplementary Appendix S1). The quantitative and free-text findings were manually collated, assessed, and incorporated into the results section where relevant.

The questionnaires were directly emailed to all 302 GPs with email addresses on the Irish College of General Practitioners (ICGP) online directory.²⁰ A link to both questionnaires was also posted on an online Irish GP website, GP Forum, which has approximately 2000 members (<https://www.nationalgpforum.com/app/login>).

There is no accurate database of actual number of GPs in Ireland and many GPs are not Members of the ICGP. Many GPs are not on the Irish Medical Council specialist GP register. There are members of the ICGP who currently work in other specialties, especially public health and secondary care. GP Forum is an online GP discussion board. This study used both the ICGP online directory and GP Forum to reach as many GPs as possible.

RESULTS

There were 298 completed survey responses. Of the 302 GPs emailed, 44 (15%) completed the survey. The online GP Forum yielded a response rate of around 13% ($n = 254$) from approximately 2000 members. A total of 52 (17%) GPs who completed a questionnaire prescribed isotretinoin. Older GPs (aged ≥ 35 years) were more likely to prescribe isotretinoin (Table 1). Male GPs ($n = 34/142$, 24%) were also more likely than female GPs ($n = 18/156$, 12%) to initiate isotretinoin (data not shown). The total number of GPs who do not prescribe isotretinoin is 246; the total number of GPs who prescribe isotretinoin is 52 (Table 1).

Drivers and clinical indications for initiating isotretinoin

The GPs who prescribed isotretinoin ($n = 52$) cited two key drivers: prolonged dermatology waiting lists ($n = 34$, 65%) and a special interest in dermatology ($n = 31$, 60%). Other reasons were identified by nine GPs (17%): 'prescribed for family and friends'; 'prescribed in New Zealand or Canada'; 'safer to prescribe in GP'; and 'financial remuneration' (data not shown).

The clinical indications GPs gave for prescribing isotretinoin were: suboptimal

Figure 2. Acne in the same teenager after a 6-month course of isotretinoin (the normal duration of treatment with isotretinoin).



response to oral antibiotics ($n = 41$, 79%), acne scarring ($n = 37$, 71%), nodulocystic acne ($n = 34$, 65%), moderate-to-severe acne ($n = 28$, 54%), and patient request ($n = 7$, 13%) (data not shown).

Dose and duration of isotretinoin therapy

GPs determined the dose of isotretinoin by patient weight ($n = 39$, 75%), 'standard dose' ($n = 12$, 23%), and acne severity ($n = 8$, 15%), whereas one GP decided the dose based on sex of the patient (data not shown).

Some GPs incorporated several factors when deciding the dose. The usual duration of isotretinoin treatment cited by GPs was: ≤ 3 months ($n = 4$, 8%), 4–6 months ($n = 39$, 75%), and 7–9 months ($n = 9$, 17%) (data not shown).

Isotretinoin and contraception in females

Most GPs ($n = 43/52$, 83%) prescribed isotretinoin to males and females, whereas nine (17%) prescribed for males only. When prescribing isotretinoin for women of childbearing age, all GPs prescribed contraception: dual contraception (barrier and hormonal) ($n = 24$, 56%), oral contraceptive pill alone ($n = 12$, 28%), or long-acting reversible contraception alone ($n = 7$, 16%) (data not shown).

When prescribing isotretinoin for females, 79% ($n = 34/43$) carried out monthly pregnancy tests, 5% ($n = 2/43$) did pregnancy tests less frequently than monthly, and 5% ($n = 2/43$) never did pregnancy tests. The remaining GPs ($n = 5$, 12%) judged the question 'not applicable' (data not shown).

Isotretinoin and depression

A total of 52 GPs initiate isotretinoin. When managing a patient with acne and a past history of depression, 35% of these GPs ($n = 18$) said they would not prescribe isotretinoin, 31% ($n = 16$) would consider psychiatric assessment, 23% ($n = 12$) would prescribe isotretinoin without psychiatric assessment, and 12% ($n = 6$) would request psychiatric assessment before prescribing isotretinoin (data not shown).

Blood testing of patients taking isotretinoin

Most GPs initiating isotretinoin ($n = 48$, 92%) undertook blood testing (Table 2). However, there was suboptimal testing of lipids and liver function tests. The summary of product characteristics for isotretinoin recommends that liver enzymes and fasting lipids only be checked before treatment, 1 month after initiating treatment, and at 3-monthly intervals thereafter.²¹ The testing of full blood count, undertaken by 38% ($n = 20$), is not required for monitoring. Most patients ($n = 37$, 77%) had blood tests more frequently than recommended, whereas some patients ($n = 6$, 13%) had insufficient testing (Table 2).

Barriers to GPs initiating isotretinoin

The 246 GPs who had not initiated isotretinoin identified many barriers, which are listed in Table 3. The three main reasons given are medicolegal concerns, being unaware that GPs can prescribe isotretinoin, and being unfamiliar with isotretinoin.

Table 1. GP age and isotretinoin prescribing

Age, years	Number of GPs	GPs who prescribe isotretinoin, <i>n</i> [% of age group]	GPs who do not prescribe isotretinoin, <i>n</i> [% of age group]
<35	42	2 (5)	40 (95)
35–44	99	10 (10)	89 (90)
45–54	75	16 (21)	59 (79)
55–64	69	21 (30)	48 (70)
>65	13	3 (23)	10 (77)
Total	298	52	246

Table 2. Blood testing carried out by GPs for patients who are prescribed isotretinoin, N = 52

Type of blood test	n(%)
Blood test (any)	48 (92)
FBC + LFTs + lipids	34 (65)
LFTs	29 (56)
Lipids	25 (48)
FBC	20 (38)
Frequency of blood tests among the 48 GPs who undertook blood tests	
Every month	28 (58)
Every 2 months	9 (19)
Every 3 months	4 (8)
Once only (6–8 weeks after initiating isotretinoin)	6 (13)

FBC = full blood count. LFTs = liver function tests.

Table 3. Barriers identified by GPs to initiating isotretinoin, N = 246

Barrier	n(%)
Medicolegal concerns	150 (61)
Unaware GP can prescribe isotretinoin	135 (55)
Unfamiliar with isotretinoin	102 (41)
Teratogenicity	78 (32)
Workload	78 (32)
Suicide risk	49 (20)
Abnormal LFT	27 (11)
Abnormal lipids	18 (7)
Stated 'not interested in this work'	13 (5)
Dry mucous membranes	9 (4)
'Other' reasons	29 (12)

LFTs = liver function tests.

Table 4. Factors identified by GPs as supporting GP initiation of isotretinoin, N = 246

Factor	n(%)
Irish College of GPs guidelines	118 (48)
Local dermatologist support	119 (48)
More training	105 (43)
Financial remuneration	106 (43)
Medicolegal support	97 (39)
All of the above factors	107 (43)

'Other' reasons cited by 12% (n = 29) of GPs as barriers not listed in Table 3 were: 'secondary care responsibility', 'only licensed for specialist prescribing', 'under resourced', 'not commonly enough prescribed medication to remain skilled', 'patient demand leading to inappropriate prescribing', and 'special interest/diploma in dermatology needed'.

Attitudes of GPs who did not prescribe isotretinoin

Among the 246 GPs who did not initiate isotretinoin, 91% (n = 223) considered that isotretinoin could be safely managed in primary care. Most (n = 184, 75%) felt that isotretinoin should not be restricted to secondary care, and 67% (n = 164) expressed an interest in prescribing isotretinoin. Enhanced patient access to isotretinoin was identified as beneficial by most GPs (n = 217, 88%). Many GPs (n = 150, 61%) considered secondary care dermatologists supportive of more widespread isotretinoin prescribing by GPs.

Factors supporting GP initiation of isotretinoin

GP responders identified factors supporting GP initiation of isotretinoin (Table 4). Training, national guidelines, resources, local dermatologist, and medicolegal support emerge as key enablers to supporting GP initiation of isotretinoin. The current ICGP acne guidelines are silent on GP initiation of isotretinoin.

DISCUSSION

Summary

This study identified that a significant number of GPs in Ireland, especially older GPs (aged ≥35 years) and male GPs, currently initiate

isotretinoin. However, there was substantial deviation from isotretinoin summary of product characteristics recommendations for pregnancy testing, blood testing, and contraceptive advice.²¹ The patient safety implications of suboptimal management, and resource implications of excessive testing, were important issues identified in this study. It is noteworthy that a third of GPs would not prescribe isotretinoin to people with acne and a past history of depression, possibly depriving these patients of a highly effective therapeutic option.

Most GP responders were favourably disposed to managing isotretinoin, despite multiple barriers. Training and national guidelines can address identified barriers to GPs prescribing isotretinoin, standardise patient care, and improve timely equitable patient access to isotretinoin.

GPs are skilled in the provision of contraception and assessment of mental health, two important clinical issues when prescribing isotretinoin. It is therefore timely to re-evaluate the role of GPs in managing isotretinoin.

Strengths and limitations

This study assessed a very modest and possibly unrepresentative sample of GPs in Ireland. Selective response to the questionnaire may bias results: those GPs currently prescribing isotretinoin or with a special interest in dermatology might preferentially respond. However, most GP responders did not prescribe isotretinoin, and 40% of GPs who prescribed isotretinoin did not identify dermatology as a special interest. The substantial workload implications of GP management of isotretinoin were not quantified. Patient and consultant dermatologist opinions were not sought in this small study. Qualitative analysis among GPs was not undertaken.

Comparison with existing literature

To the authors' knowledge, this is the first study to assess the extent of isotretinoin use and GP attitudes towards managing isotretinoin in Ireland. The ICGP guideline *Acne Management in Primary Care* published in 2019 does not mention the use of oral isotretinoin by GPs.²²

There was an association between the use of isotretinoin and deprivation in New Zealand, with the cost of private dermatologists a barrier to patients using isotretinoin.¹⁵ Similar barriers to equitable isotretinoin access may exist in other private healthcare systems.

Restriction of isotretinoin prescribing in the UK reflects a consensus position

that consultant dermatologists alone *'have the required knowledge and expertise'*.¹⁴ The side effects of isotretinoin are common and dose related, with treatment cessation due to severe adverse events in 3.2% of patients.¹⁸ The two principal clinical concerns with isotretinoin are mental health and teratogenicity. A causal relationship between isotretinoin and depression is unproven,^{2,3} and teratogenicity of isotretinoin requires a robust pregnancy prevention programme.^{2,3} GPs are trained in contraception and routinely manage mental health concerns. However, hospital dermatologists are not uniformly skilled in contraception, or in identification of mental health concerns, with some inappropriate referral to psychiatrists.²³

Implications for research and practice

Most Irish GPs in this study considered that isotretinoin could be effectively managed by GPs, and two-thirds would consider prescribing isotretinoin. The finding that younger GPs and female GPs were less likely to initiate isotretinoin merits exploration, especially given the demographics of the GP workforce.^{24,25}

There are substantial concerns about antibiotic use for acne and prudent antimicrobial stewardship.^{5,10} Access to isotretinoin in primary care could therefore enhance antimicrobial stewardship.

Most people with acne do not attend their GP for acne treatment, and current management of acne in primary care is suboptimal.⁵ Equitable access to isotretinoin in general practice might help provide the catalyst for people with acne to attend their GP. The resource implications, and opportunity costs, of enhanced use of isotretinoin in primary care warrant evaluation. The potential for the participation of practice nurses may also be assessed.

The patient perspective was notably absent from this limited survey and should inform evolving clinical practice and national guidelines. Future qualitative research would be very useful. Many teenagers currently have untreated moderate-to-severe acne, with profound adverse physical and psychological sequelae. The clinical implications of primary care guidelines and resources supporting timely equitable access to isotretinoin are enormous.

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Ethical approval

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Provenance

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Competing interests

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REFERENCES

1. Thiboutot DM, Dreno B, Abanmi A, *et al*. Practical management of acne for clinicians: an international consensus from the Global Alliance to Improve Outcomes in Acne. *J Am Acad Dermatol* 2018; **78**(2 Suppl 1): S1.e1–S23.e1.
2. Zaenglein AL, Pathy AL, Schlosser BJ, *et al*. Guidelines of care for the management of acne vulgaris. *J Am Acad Dermatol* 2016; **74**(5): 945.e33–973.e33.
3. Zouboulis CC, Bettoli V. Management of severe acne. *Br J Dermatol* 2015; **172**(Suppl 1): 27–36.
4. Nast A, Dreno B, Bettoli V, *et al*. European evidence-based (S3) guidelines for the treatment of acne. *J Eur Acad Dermatol Venereol* 2012; **26**(Suppl 1): 1–29.
5. Francis NA, Entwistle K, Santer M, *et al*. The management of acne vulgaris in primary care: a cohort study of consulting and prescribing patterns using the Clinical Practice Research Datalink. *Br J Dermatol* 2017; **176**(1): 107–115.
6. Cotterill JA, Cunliffe WJ. Suicide in dermatological patients. *Br J Dermatol* 1997; **137**(2): 246–250.
7. Gieler U, Gieler T, Kupfer JP. Acne and quality of life: impact and management. *J Eur Acad Dermatol Venereol* 2015; **29**(Suppl 4): 12–14.
8. Tan J, Kang S, Leyden J. Prevalence and risk factors of acne scarring among patients consulting dermatologists in the USA. *J Drugs Dermatol* 2017; **16**(2): 97–102.
9. Walsh TR, Efthimiou J, Dreno B. Systematic review of antibiotic resistance in acne: an increasing topical and oral threat. *Lancet Infect Dis* 2016; **16**(3): e23–e33.
10. Sinnott SJ, Bhate K, Margolis DJ, Langan SM. Antibiotics and acne: an emerging iceberg of antibiotic resistance? *Br J Dermatol* 2016; **175**(6): 1127–1128.
11. Khiali S, Gharekhani A, Entezari-Maleki T. Isotretinoin: a review on the utilization pattern in pregnancy. *Adv Pharm Bull* 2018; **8**(3): 377–382.
12. Asai Y, Baibergenova A, Dutil M, *et al*. Management of acne: Canadian clinical practice guideline. *CMAJ* 2016; **188**(2): 118–126.
13. NHG: The Dutch College of General Practitioners. *NHG Standard. Acne*. [In Dutch]. 2017. <https://www.nhg.org/standaarden/volledig/nhg-standaard-acne#Voorlichtingenadvies> [accessed 13 Jul 2020].
14. Goodfield MJ, Cox NH, Bowser A, *et al*. Advice on the safe introduction and continued use of isotretinoin in acne in the U.K. 2010. *Br J Dermatol* 2010; **162**(6): 1172–1179.
15. Moodie P, Jaine R, Arnold J, *et al*. Usage and equity of access to isotretinoin in New Zealand by deprivation and ethnicity. *N Z Med J* 2011; **124**(1346): 34–43.
16. Managing acne in primary care. *BPJ* 2013; **51**: 16–27. <https://bpac.org.nz/BPJ/2013/March/docs/BPJ51-pages-16-27.pdf> [accessed 13 Jul 2020].
17. National Institute for Health and Care Excellence. *Acne vulgaris: management. In development [GID-NG10109]*. Expected publication date TBC. <https://www.nice.org.uk/guidance/indevelopment/gid-ng10109> [accessed 13 Jul 2020].
18. Vallerand IA, Lewinson RT, Farris MS, *et al*. Efficacy and adverse events of oral isotretinoin for acne: a systematic review. *Br J Dermatol* 2018; **178**(1): 76–85.
19. Buckley D, Yoganathan S. Can oral isotretinoin be safely initiated and monitored in primary care? A case series. *Ir J Med Sci* 2017; **186**(2): 315–319.
20. Irish College of General Practitioners. *Find a GP*. https://www.icgp.ie/go/find_a_gp [accessed 13 Jul 2020].
21. Medicines.ie. *Roaccutane 10m soft capsules. Summary of product characteristics last updated on medicines.ie:19/3/2020*. 2020. <https://www.medicines.ie/medicines/roaccutane-10mg-soft-capsules-33644/smpc> [accessed 13 Jul 2020].
22. Loughnane J, ICGP Quality in Practice Committee. *Acne management in primary care: quick reference guide*. Dublin: Irish College of General Practitioners, 2019. <https://www.icgp.ie/go/library/catalogue/item?spld=075F2D43-5E47-4450-AC4385ACFDC10FC4> [accessed 13 Jul 2020].
23. Daunton A, Oyebode F, Goulding JMR. Depression and the dermatologist: a critical analysis of contemporary isotretinoin prescribing practices. *Clin Exp Dermatol* 2019; **44**(8): 903–905.
24. O’Kelly M, Teljeur C, O’Kelly F, *et al*. *Structure of general practice in Ireland 1982–2015*. Dublin: Irish College of General Practitioners, 2016.
25. Centre for Workforce Intelligence. *In-depth review of the general practitioner workforce. Final report*. London: Centre for Workforce Intelligence, 2014. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/507493/CfWI_GP_in-depth_review.pdf [accessed 13 Jul 2020].