The Journal of Laryngology & Otology

cambridge.org/jlo

Oral corticosteroid prescribing practice for chronic rhinosinusitis with nasal polyps among otorhinolaryngologists in Scotland: a nationwide survey

Rasads Misirovs[1,2,3], Gary Hoey[2], Brian Lipworth[1,2] and Richard Green[2]

[1]Scottish Centre for Respiratory Research, School of Medicine, University of Dundee, Ninewells Hospital, Dundee, Scotland, [2]Ninewells Hospital & Medical School, Dundee, Scotland and [3]Department of Doctoral Studies, Riga Stradins University, Riga, Latvia

Main Article

Rasads Misirovs takes responsibility for the integrity of the content of the paper

Presented at ENT Scotland Summer Meeting, 11 November 2022, Dunblane, Scotland.

Cite this article: Misirovs R, Hoey G, Lipworth B, Green R. Oral corticosteroid prescribing practice for chronic rhinosinusitis with nasal polyps among otorhinolaryngologists in Scotland: a nationwide survey. *J Laryngol Otol* 2024;1–5. https://doi.org/10.1017/S0022215124000446

Received: 23 March 2023
Revised: 6 December 2023
Accepted: 12 December 2023

Keywords:
Corticosteroids; rhinosinusitis; nasal polyps; survey

Corresponding author:
Rasads Misirovs;
Email: rmisirovs001@dundee.ac.uk

Abstract

Objective. Oral corticosteroids are used to treat exacerbations of chronic rhinosinusitis with nasal polyps. Oral corticosteroid prescribing practices vary as reported from national surveys in Italy, China, Canada and the USA.

Methods. A nationwide online survey of ENT doctors practicing in Scotland was conducted using Microsoft Forms.

Results. There was a 31 per cent response rate. The most common daily doses of oral corticosteroid courses were 25 mg and 40 mg with the lengths being 14 and 7 days, respectively. Seventy-seven per cent of respondents prescribed the same daily dose throughout the course. Rhinologists prescribed longer courses with a smaller daily dose of prednisolone. Only one respondent fully agreed that there were clear guidelines regarding the daily dose and the length of oral corticosteroid course in the treatment of chronic rhinosinusitis with nasal polyps.

Conclusion. The heterogeneity of oral corticosteroid prescribing practice in different countries, including Scotland, reveals the need for clear guidelines with a specific oral corticosteroid daily dose and length of the course.

Introduction

Chronic rhinosinusitis with nasal polyps is an inflammatory disorder affecting about 4 per cent of the population globally. The main medical therapy for chronic rhinosinusitis is intranasal and, less often, oral corticosteroids as it suppresses chronic inflammation.[1] Oral corticosteroids are used in several ear, nose, and throat conditions, including sudden sensorineural hearing loss, Bell's palsy and chronic rhinosinusitis.[2,3] Chronic rhinosinusitis with nasal polyps is a predominantly type-2 driven inflammation, and corticosteroids control eosinophilic inflammation by inhibiting eosinophil recruitment to the inflammation site, suppressing interleukin-5 (IL-5) release, and inducing eosinophil apoptosis as well as attenuating IL-4 and IL-13 signalling and other pro-inflammatory effector cells.[4,5] Oral corticosteroids are prescribed for chronic rhinosinusitis-exacerbated symptoms or perioperatively and have been proven to be beneficial by improving nasal blockage, sense of smell, polyp size and levels of inflammatory markers.[6–8] The European Position Paper on Rhinosinusitis and Nasal Polyps 2020 (EPOS2020) recommends the use of oral corticosteroids, specifically to manage re-exacerbations and relapse of chronic rhinosinusitis with nasal polyps by using brief cycles, varying between one to three weeks.[3,7,9]

Systemic steroids have well-known systemic adverse effects and can suppress the hypothalamic–pituitary–adrenal axis, preventing appropriate cortisol production.[1,10] Oral corticosteroids are reserved as part of maximal medical therapy for chronic rhinosinusitis with nasal polyps when other treatments such as nasal saline irrigation, intranasal corticosteroid sprays or drops, oral antihistamines, antileukotriene agents and antibiotics, have not been successful.[2,11,12] The definition of maximal medical therapy seems to vary among clinicians.[13,14] Oral corticosteroids are one of the medical treatments that are often considered for chronic rhinosinusitis with nasal polyps before progressing to functional endoscopic sinus surgery (FESS).[11,15] The need for repeated courses of oral corticosteroids is used as an indicator of poor disease control and is an indication for FESS.[4,11]

There is no universally accepted modality used by clinicians for prescribing systemic steroids for chronic rhinosinusitis with nasal polyps, and routine clinical practice is characterized by significant heterogeneity in terms of type, dosage and treatment duration of systemic steroids.[1,12,15,16] The dosing of oral corticosteroids is important to provide maximal benefit while minimizing potential side effects as a correlation exists between the presence of adverse effects and increasing oral corticosteroids dose.[2,3,6,14,17,18]

Several surveys of oral corticosteroid prescribing habits for chronic rhinosinusitis have been done in countries such as Italy, Canada, China and the USA.[1–3,13] Because there is no specific standard dose and duration of oral corticosteroid therapy for chronic

rhinosinusitis with nasal polyps, we carried out a nationwide survey in Scotland to identify current prescribing practice of oral corticosteroids for exacerbation of chronic rhinosinusitis with nasal polyps as part of maximal medical therapy and intranasal corticosteroid immediately after it with the hope that the survey results might assist non-rhinologists prescribing oral corticosteroids with confidence. To our knowledge, this is the first national survey on oral corticosteroid prescribing practice since the most comprehensive guidelines, EPOS2020, have been published on chronic rhinosinusitis management.

Materials and methods

A cross-sectional survey, which was created online using Microsoft Forms, was electronically distributed to ENT specialty trainee doctors via trainee group chat and to all members of the Scottish Otolaryngological Society (ENT Scotland) via email by the ENT Scotland administrator. A cover letter disclosed the study's goal of characterizing prescribing habits of ENT surgeons working in Scotland. ENT Scotland had 155 members, of which 90 were consultants, at the time of survey distribution. The survey was anonymous and the inclusion criteria included having a personal "@nhs.scot" email account to ensure that only ENT doctors practicing in Scotland had access to the survey and that the survey could only be filled once per person. Respondents were able to submit their responses by fully completing the survey.

The questionnaire had 13 questions. The first five questions focused on respondents' demographic information. All questions were available to respondents that prescribe oral corticosteroids for chronic rhinosinusitis with nasal polyps. Doctors that do not prescribe oral corticosteroids for chronic rhinosinusitis with nasal polyps or do not look after patients with chronic rhinosinusitis with nasal polyps did not have access to the last eight questions, which focused on oral corticosteroid prescribing practice for chronic rhinosinusitis with nasal polyps. All questions were compulsory other than an optional question asking in which health board the doctors were practicing. A question on ENT subspeciality was available to consultants and staff, associate specialists and specialty doctors; it was not available to specialty trainee doctors because they change subspecialities every six months during their training. All questions, other than the last question "open to any comments", were multiple-choice questions with only one selection allowed. The final questionnaire is reproduced in Supplementary Material.

Results

Forty-eight responses were received, which was 31 per cent of all ENT Scotland members. Fifty per cent were consultants, 43.8 per cent were specialty trainee doctors, 2.1 per cent were specialists and specialty doctors, and the rest were either core surgical trainees or teaching fellow doctors; 43.8 per cent, 20.8 per cent and 20.8 per cent of respondents were aged 30–39, 40–49 and 50–59 years old, respectively. Among all respondents, 20 per cent were rhinologists (Table 1). Forty (83.3 per cent) respondents are involved in the care of patients with chronic rhinosinusitis with nasal polyps, and 39 (98 per cent) of them regularly prescribe oral corticosteroids for exacerbation of symptoms as part of maximal medical therapy for patients with chronic rhinosinusitis with nasal polyps. For 100 per cent the choice of oral corticosteroids was prednisolone. The most common lengths of the oral corticosteroid courses were 14 (38.5 per cent) and 7 (35.9 per cent) days (Table 2). Seventy-seven per cent prescribe the same daily dose of oral corticosteroids throughout the course, 18 per cent taper the dose down, and the rest either prescribe oral corticosteroids on alternate days or prescribe two different doses throughout the course. The most common daily doses of prednisolone were 25 mg (43.6 per cent) and 40 mg (30.8 per cent) (Table 3). Two trends were present regarding the most commonly prescribed daily dose and length of oral corticosteroids. The first was 25 mg once a day for two weeks and, if a higher dose was used, 40 mg once a day for one week (Figure 1).

Table 1. ENT consultants', specialists' and specialty doctors' subspecialities

ENT subspeciality	n (%)
Benign head and neck	1 (4%)
General ENT	3 (12%)
Laryngology	0 (0%)
Malignant head and neck	6 (24%)
Otology	7 (28%)
Paediatric ENT (including all paediatric subspeciality ENT surgeons)	3 (12%)
Rhinology	5 (20%)

There was a prescribing pattern based on subspeciality as 80 per cent of rhinologists prescribe a 14-day course of 25 mg daily prednisolone, 83 per cent of malignant head and neck consultants prescribe various lengths of the course of $\geq$ 30 mg daily prednisolone, and 50 per cent of otologists prescribe a 7-day course of $\geq$ 40 mg daily prednisolone. No statistical significance could be tested between rhinologists and non-rhinologists due to the small number of respondents and variations in daily dose and length of the prednisolone course.

Safe prescribing of the annual length of oral corticosteroids varied among respondents (Table 4). Fifty-six per cent of respondents were either not sure or had never considered a total annual dosage of prednisolone becoming dangerous for patients; the rest of the responses were evenly distributed between 400 mg to 1400 mg. Respondents prescribing a 14-day course selected longer safe annual exposure of prednisolone compared to those prescribing a 7-day course, up to 5–7 weeks and up to 4 weeks, respectively ($p < 0.001$). However, there was no statistically significant difference in the maximal annual safe exposure to prednisolone based on the most commonly prescribed daily doses of 25 mg and 40 mg of prednisolone ($p = 0.15$). Following medical polypectomy with

Table 2. Length of oral prednisolone course

Days	n (%)
5	2 (5.1%)
7	14 (35.9%)
10	6 (15.4%)
14	15 (38.5%)
15	1 (2.6%)
21	1 (2.6%)

https://doi.org/10.1017/S0022215124000446 Published online by Cambridge University Press

Table 3. Daily dose of oral corticosteroids

Prednisolone	n (%)
20 mg	4 (10.3%)
25 mg	17 (43.6%)
30 mg	3 (7.7%)
40 mg	12 (30.8%)
50 mg	3 (7.7%)

prednisolone, all respondents prescribe intranasal corticosteroid. The most popular form is nasal drops (76.9 per cent). Of the nasal drop group, 83.3 per cent of clinicians prescribe fluticasone. The remainder prescribe intranasal corticosteroid spray, fluticasone spray being the most common choice for 55.5 per cent of them.

Only 1 (2.6 per cent) respondent fully agreed that there were clear guidelines in the national and international literature regarding the daily dose and the length of the prednisolone course in the treatment of chronic rhinosinusitis with nasal polyps; 25.6 per cent partially agreed, 38.5 per cent partially disagreed, and 33.3 per cent fully disagreed with the statement. Some respondents (12.8 per cent) left a comment with no common theme, mainly clarifying their oral corticosteroid prescribing practice based on the risks and benefits of prescribing oral corticosteroids for each patient, locally agreed consensus on the prednisolone daily dose, and length of the course and tapering regimen.

Discussion

Our survey had 31 per cent response rate, which is low but higher compared to other studies by Scott et al. in the USA, Ansari et al. in Canada and Huang et al. in China, with 12.9 per cent, 18 per cent and 26.8 per cent response rates, respectively.[2, 3, 13] A somewhat similar response rate (26.3 per cent) was reported 10 years ago in a survey on maximal medical therapy for chronic rhinosinusitis among ENT surgeons in the UK.[19]

Of the respondents who treat patients having chronic rhinosinusitis with nasal polyps, 98 per cent prescribe oral corticosteroids for exacerbation of symptoms, which is a higher percentage of ENT doctors than in Italy (93.9 per cent) or Canada (79 per cent).[1,2] The oral corticosteroid prescribing habits potentially have increased in recent years as 10 years ago only 81 per cent of ENT doctors in the UK were prescribing oral corticosteroids for chronic rhinosinusitis, as reported by Sylvester et al.[19]

Of the respondents, 43.6 per cent prescribe 25 mg daily, which is similar to the practice in Italy.[1] This dose likely is the most commonly used in Scotland following the 2011 report of a locally conducted randomized placebo-controlled trial for chronic rhinosinusitis with nasal polyps with oral corticosteroids by Vaidyanathan et al.[20] The rationale here is that it is easy for patients to take a single 25-mg tablet once a day without tapering for two weeks as opposed to taking multiples of 5-mg tablets along with gradual tapering. We speculate that rhinologists in Scotland are more aware of this study, therefore they choose to prescribe this regimen. About 52 per cent of ENT doctors in Canada prescribe 41–60 mg prednisone daily for chronic rhinosinusitis with nasal polyps, which is the daily dose that half of otologists in Scotland choose to prescribe.[2]

There were five unique doses described by respondents in our survey, which was less than in Ansari et al. and Scott et al. reported from Canada and USA.[2,3] Interestingly, two-thirds of ENT doctors in Canada and one-third in the USA taper the dose down compared to 18 per cent of ENT doctors in Scotland.[2,3] Literature indicates no need for tapering of oral corticosteroid courses in the length of two to three weeks because the risk of rebound inflammation and adrenal suppression is low.[4,10]

Six unique lengths of oral corticosteroid courses were described by the respondents. The two most common oral corticosteroid course lengths were 14 days and 7 days, which is similar to the reports from Canada where 34 per cent and 12 per cent prescribe oral corticosteroids for 7–9 days and 13–15 days, respectively.[2] In China, 81.3 per cent of ENT doctors prescribe oral corticosteroids for two weeks or less, which is similar to 94.8 per cent of respondents in Scotland.[13]

Scott et al. reported the most common resource for prescribing habits of oral corticosteroids was mentorship and personal experience in 41 per cent and 33 per cent of respondents, respectively.[3] We did not include such a question in our survey, and based on anonymity and diversity of responses among consultants, specialists, and specialty and specialty-trainee doctors we are unable to comment on the resource for prescribing habits of ENT doctors in Scotland.

In our survey there was less agreement that there is sufficient guidance on prescribing oral corticosteroids in the current literature compared to the Italian survey—2.6 per cent and 25.6 per cent of ENT doctors in Scotland and 19.0 per cent and 56.8 per cent in Italy fully or partially agreed with the statement, respectively.[1] The EPOS2020 guidelines provide a range of lengths of oral corticosteroids courses (7–21 days) but do not specify daily doses of oral corticosteroids other than reviewing studies where the daily doses of prednisolone were 25–60 mg, which makes it challenging for ENT doctors to pick the optimal daily dose and length of oral corticosteroid course.[9] Similarly to the Italian survey, we report heterogeneity in the responses to safe annual length and total dose of oral corticosteroids.[1] Our survey reveals more than half of respondents did not know or had never considered a total annual prednisolone dose that becomes dangerous for adverse events.

Similar to the Italian study, a high degree of homogeneity in prescribing practice of intranasal corticosteroid following oral corticosteroids was seen among ENT doctors in Scotland, although it was different from the practice in Italy —nasal drops were the most commonly used intranasal corticosteroid formulation among ENT doctors in Scotland whereas nasal spray was the most commonly used intranasal corticosteroid formulation in Italy.[1]

The lack of homogeneity in practice might be partially explained by the lack of specific guidance in terms of duration and dose for oral corticosteroids in current guidelines.[1,2,4,14] This is confirmed by a high proportion of respondents to our survey stating that national and international recommendations on the use of oral corticosteroids for chronic rhinosinusitis with nasal polyps do not provide clear guidance, which is similar to the reported results from Italy.[1] Interestingly, De Corso et al. stated that, in accordance with international guidelines, oral corticosteroids should not be used for more than two to three cycles per year.[1] Having not specified the daily dose and the length of each cycle, such a statement is challenging to apply in clinical practice.

https://doi.org/10.1017/S0022215124000446 Published online by Cambridge University Press

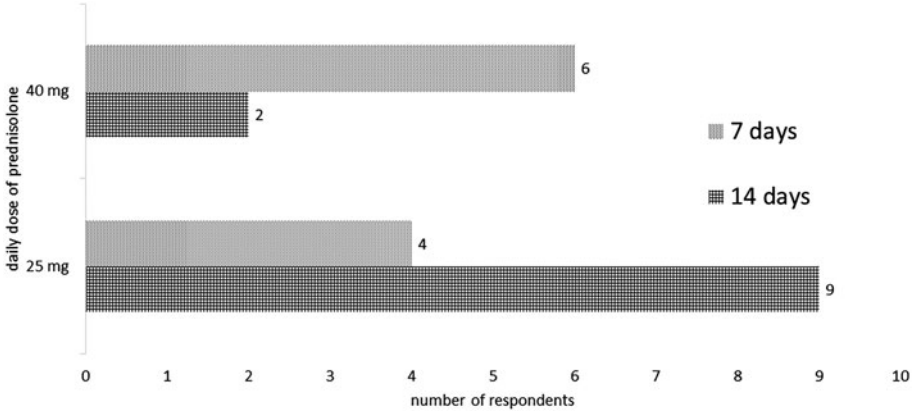

Figure 1. The two most common oral corticosteroids daily doses and course lengths. Legend: The two most prescribed daily doses of oral corticosteroids were 25 and 40 milligrams (Y-axis). The two most common lengths of oral corticosteroids were 7 and 14 days (different fill of the horizontal columns). The number of respondents prescribing the specific daily dose and the length of oral corticosteroids is depicted on the X-axis.

Table 4. Cut-off of days per year of oral prednisolone use respondents consider safe for prevention of adverse events of systemic steroids

Total length of prednisolone annually	n (%)
< 3 weeks/year	8 (20.5%)
< 4 weeks/year	9 (23.1%)
< 5 weeks/year	5 (12.8%)
< 6 weeks/year	8 (20.5%)
< 7 weeks/year	3 (7.7%)
not sure	4 (10.3%)
other	2 (5.1%)

- Oral corticosteroids are used to treat exacerbations of chronic rhinosinusitis with nasal polyps
- Oral corticosteroid prescribing practices among ENT doctors in Scotland are heterogenous, which is similar to practices in other countries
- In Scotland the most commonly prescribed daily doses of oral corticosteroids and courses were 25 mg and 40 mg with lengths of 14 days and 7 days, respectively
- Nasal drops following oral corticosteroid courses were the most used intranasal corticosteroid formulation among ENT doctors in Scotland
- There is a clinical need for clear guidelines in prescribing oral corticosteroids with agreed ranges on the daily doses and lengths of the courses

The lasting effect of oral corticosteroids varies from weeks to months. Cochrane review by Head et al. highlighted little or no difference in quality of life, symptom severity or nasal polyp size three to six months after oral corticosteroid courses in patients who had oral steroids compared to patients who did not.[21] The best effect of oral corticosteroids in improving nasal symptoms and reducing nasal polyp size is in patients with chronic rhinosinusitis with nasal polyps with type 2 inflammation, which is characterized with elevated peripheral blood eosinophils and total immunoglobulin-E (IgE).[9] In patients for whom oral corticosteroids are contraindicated, long-term low-dose macrolide antibiotics should be considered as they has shown improvement in nasal symptoms, quality of life and better control of nasal polyp growth following FESS, especially in patients with chronic rhinosinusitis with nasal polyps with non-type 2 inflammation with total IgE < 200 IU/ml and nasal polyp tissue eosinophil count $\leq$ 10 per high power field.[5,9,22]

Our limitations are the relatively low response rate which is not unusual as reported elsewhere.[1,3,13] These response rates may introduce significant selection bias into the survey results. Multiple-choice questionnaires have their own limitations as sometimes a single answer cannot reflect the most common practice. Deliberately, we only had 13 questions as we hypothesised increasing the number of questions would reduce the response rate.

Conclusions

Heterogeneity of practice in different countries in prescribing oral corticosteroids as part of maximal medical therapy for chronic rhinosinusitis with nasal polyps reveals the need for clear guidelines in prescribing oral corticosteroids with agreed ranges on the daily dose and length of the course. Despite the most recent EPOS2020 guidelines, oral corticosteroid prescribing practices vary among ENT doctors in Scotland, but trends exist based on subspeciality. Non-rhinologists should follow rhinologists' prescribing practice when treating patients with chronic rhinosinusitis with nasal polyps. Further studies need to be performed to compare effectiveness and safety of different doses and lengths of oral corticosteroid courses to find the optimal dose and the duration of oral corticosteroids in chronic rhinosinusitis with nasal polyps. These could inform future guidelines and be applicable in clinical practice.

Acknowledgements. We would like to acknowledge Ms Karen Mail, Scottish Otolaryngological Society (ENT Scotland) administrator for helping as to distribute the survey.

Funding. This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

References

1 De Corso E, Pipolo C, Cantone E, Ottaviano G, Gallo S, Canevari FRM *et al.* Survey on use of local and systemic corticosteroids in the management of chronic rhinosinusitis with nasal polyps: identification of unmet clinical needs. *J Pers Med* 2022;**12**:897
2 Ansari S, Rotenberg BW, Sowerby LJ. Oral corticosteroid prescribing habits of Canadian otolaryngologist–head and neck surgeons. *J Otolaryngol Head Neck Surg* 2016;**45**:17
3 Scott JR, Ernst HMJ, Rotenberg BW, Rudmik L, Sowerby LJ. Oral corticosteroid prescribing habits for rhinosinusitis: the American Rhinologic Society membership. *Am J Rhinol Allergy* 2017;**31**:22–6
4 De Silva AP, Schembri MA, Sarah AH, Chao J, Yip KH, Cildir G *et al.* Short-term oral steroids significantly improves chronic rhinosinusitis without nasal polyps. *Laryngoscope* 2021;**131**:E2618–26
5 Lin CF, Wang MC, Merton AT, Ho NH, Wu PS, Hsu AT, *et al.* Add-on effect of clarithromycin to oral steroids as post-operative therapy for chronic rhinosinusitis with nasal polyps: a randomised controlled trial. *Rhinology* 2020;**58**:550–8

https://doi.org/10.1017/S0022215124000446 Published online by Cambridge University Press

6 Chang MT, Hwang PH. Challenging our assumptions: oral corticosteroids and chronic rhinosinusitis without nasal polyposis. *Int Forum Allergy Rhinol* 2021;**11**:1149–51
7 Papadakis CE, Chimona TS, Chaidas K, Ladias A, Zisoglou M, Proimos EK. Effect of oral steroids on olfactory function in chronic rhinosinusitis with nasal polyps. *Eur Ann Otorhinolaryngol Head Neck Dis* 2021;**138**:343–8
8 Zhang Y, Lou H, Wang Y, Li Y, Zhang L, Wang C. Comparison of corticosteroids by 3 approaches to the treatment of chronic rhinosinusitis with nasal polyps. *Allergy Asthma Immunol Res* 2019;**11**:482–97
9 Fokkens WJ, Lund VJ, Hopkins C, Hellings PW, Kern R, Reitsma S *et al*. European position paper on rhinosinusitis and nasal polyps 2020. *Rhinology* 2020;**58**(suppl S29):1–464
10 Nicholas MN, Li SK, Dytoc M. An approach to minimising risk of adrenal insufficiency when discontinuing oral glucocorticoids. *J Cutan Med Surg* 2018;**22**:175–81
11 Ranford D, Hopkins C. Safety review of current systemic treatments for severe chronic rhinosinusitis with nasal polyps and future directions. *Expert Opin Drug Saf* 2021;**20**:1177–89
12 Poetker DM, Jakubowski LA, Lal D, Hwang PH, Wright ED, Smith TL. Oral corticosteroids in the management of adult chronic rhinosinusitis with and without nasal polyps: an evidence-based review with recommendations. *Int Forum Allergy Rhinol* 2013;**3**:104–20
13 Huang Z, Ma J, Sun Y, Zhou B. Maximal medical therapy for chronic rhinosinusitis: a survey of Chinese otolaryngologists. *Ear Nose Throat J* 2020;**99**:159–64
14 Mansi A, Bui R, Chaaban MR. Oral corticosteroid regimens in the management of chronic rhinosinusitis. *Ear Nose Throat J* 2022;**101**:123–30
15 Ecevit MC, Erdag TK, Dogan E, Sutay S. Effect of steroids for nasal polyposis surgery: a placebo-controlled, randomized, double-blind study. *Laryngoscope* 2015;**125**:2041–5
16 González-Castro J, Pascual J, Busquets J. National survey on the use of preoperative systemic steroids in endoscopic sinus surgery. *Int Forum Allergy Rhinol* 2013;**3**:497–503
17 Howard BE, Lal D. Oral steroid therapy in chronic rhinosinusitis with and without nasal polyposis. *Curr Allergy Asthma Rep* 2013;**13**:236–43
18 Kaplan A. Canadian guidelines for chronic rhinosinusitis: Clinical summary. *Can Fam Physician* 2013;**59**:1275–81
19 Sylvester DC, Carr S, Nix P. Maximal medical therapy for chronic rhinosinusitis: a survey of otolaryngology consultants in the United Kingdom. *Int Forum Allergy Rhinol* 2013;**3**:129–32
20 Vaidyanathan S, Barnes M, Williamson P, Hopkinson P, Donnan PT, Lipworth B. Treatment of chronic rhinosinusitis with nasal polyposis with oral steroids followed by topical steroids: a randomized trial. *Ann Intern Med* 2011;**154**:293–302
21 Head K, Chong LY, Hopkins C, Philpott C, Burton MJ, Schilder AGM. Short-course oral steroids alone for chronic rhinosinusitis. *Cochrane Database Syst Rev* 2016;(4):CD011991
22 Tetik F, Korkut AY, Kaya KS, Ucak I, Celebi I, Coskun BU. Comparison of the oral steroids, macrolides and combination therapy in nasal polyposis patients. *Sisli Etfal Hastan Tip Bul* 2020;**54**:211–17

https://doi.org/10.1017/S0022215124000446 Published online by Cambridge University Press