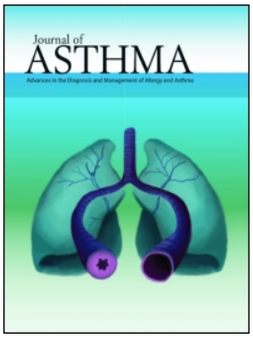

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Perception of oral corticosteroids in adult patients with asthma in France

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ABSTRACT

Objective: Oral corticosteroids (OCS) are frequently used as relievers for acute asthma and controllers for severe asthma. However, the relief offered by OCS is counterbalanced by adverse effects. We aimed to describe how patients perceive OCS treatment benefits and risks, and how this could affect their adherence to the treatment.

Methods: Patients aged ≥18 years with asthma registered with Carenity, an online patient community, were invited to respond to a questionnaire containing 35 closed and 3 open questions to assess their asthma and perceptions of OCS.

Results: 268/300 respondents were receiving or had received OCS for asthma (58 for long-term use and 107 for short-term use). The mean age at diagnosis was 21.3 years. 66% had uncontrolled asthma (GINA control score 3 or 4). Although 42% perceived OCS to be efficacious, 46% mentioned adverse effects. Respondents were mostly satisfied with OCS (median = 7.0/10), particularly for efficacy (median = 8.0/10). Respondents reported having strategies to avoid OCS, mainly because of adverse effects. 26% of respondents had previously reduced or stopped OCS; this proportion was 22% for short-term OCS users and 36% for long-term users. 15% of the respondents not receiving long-term OCS would take the treatment without doing anything else if long-term OCS were prescribed; 42% would seek an alternative treatment.

Conclusions: OCS for asthma is perceived efficient but associated with adverse effects. Patients seek alternative treatment.

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Introduction

Asthma is estimated to affect 334 million people worldwide and usually presents with chronic airway inflammation resulting in nonspecific hyperactivity (1–4). Cortisone has been the cornerstone of treatment for inflammatory diseases, including asthma, since the 1950s (5–7). In particular, oral corticosteroids (OCS) are very widely used in asthma which represents by far the commonest reason to prescribe OCS (8,9).

Depending on disease activity and severity, asthma treatment can include inhaled or oral corticosteroid treatment (or both) (10). In particular, OCS can be used as relievers for acute asthma and as controllers in patients with severe asthma (10). OCS are also prescribed to some patients for self-administration at the patient's discretion in the event of asthma exacerbation in order to initiate treatment before a medical visit, also known as rescue treatment (10–12). However, OCS-related adverse events, such as those affecting the cardiovascular, gastrointestinal, and musculoskeletal systems, as well as infections, are common and such events can be fatal. These OCS-related side-effects have been reported to be more frequent in patients with severe asthma who are under daily maintenance treatment than in those with severe asthma who have frequent rescue courses and in those with mild/moderate asthma (3,13,14). Indeed, cross-sectional data from the Optimum Patient Care Research Database and the British Thoracic Difficult Asthma Registry reported a prevalence of OCS-related

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comorbidities of 34% for high blood pressure, 16% for osteoporosis, 10% for type 2 diabetes, 10% for cardiovascular disease, 9% for cataract, 4% for glaucoma (3,15–17). Despite the risk of such complications, about 30% to 45% of patients with severe asthma receive oral corticosteroids (OCS) as a maintenance treatment (18,19).

Although adherence to treatment dosing schedules is essential for treatment efficacy, it has been reported that 45% to 70% adult patient do not take their asthma treatment as prescribed, even in a clinical trial setting or in a self-treatment, partly due to the fear of treatment-related adverse effects (20–27). In a cross-sectional, questionnaire-based survey of symptom, treatment concerns and adherence, including both patients with asthma and physicians who treat asthma, Cooper et al. (28) reported a disparity in perceptions of OCS-related side-effects between patients and clinicians, these perceptions being worse among patients. They also noted poor adherence to OCS as a consequence of negative patient perceptions of OCS.

Online social networks for health have been developed in recent years, which are potentially a rich source of information on the perceptions of OCS by patients and on patient's attitudes to a proposed prescription of OCS. In an online cross-sectional survey (604 patients, only 8.9% with a lung disease), Costello et al. (29) reported that the three side effects of OCS that were of most importance to participants were weight gain, followed by insomnia and moon face. However, to date, no study using online social networks has interviewed patients with asthma about their experience with short-term or long-term OCS treatments.

The primary objective of the present study was to describe perceptions of OCS treatment by adult patients with asthma belonging to an online patient community who had used or were using OCS on a short-term or long-term basis for their asthma. The secondary objective was to assess the attitudes (adherence, information seeking, etc.) and expectations of patients if their physician was to prescribe them long-term OCS.

Methods

Study design

CARENITY (www.carenity.com) is an international online patient community devoted to people with chronic diseases that has existed since 2011. Patients who register on Carenity can integrate a patient group specific for their illness. They can obtain information about their illness and treatment, share their experience with other patients and contribute to medical research in various therapeutic areas, by generating real-world patient insights through online surveys. Patients registered in the asthma community on the Carenity platform and living in France were invited by email to participate in an online patient satisfaction survey to assess their perceptions of OCS treatment for their asthma. Respondents agreed to participate between 11/10/2017 and 12/15/2017. 302 patients responded to the questionnaire during this period (Figure 1).

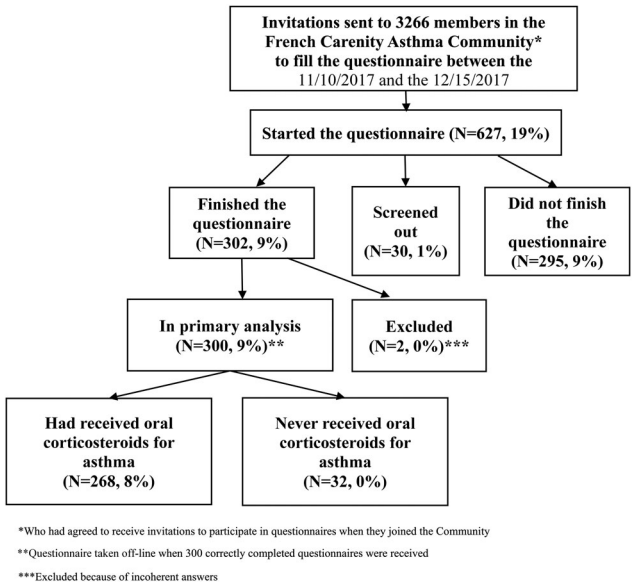

Figure 1. Flow chart summarizing the inclusion of 268 respondents from the 3266 invited members of the Carenity Asthma Community.

Eligibility criteria

Patients aged 18 years and older, registered in the Carenity online asthma community, living in France, had self-reported asthma and were aware of OCS treatment for asthma were eligible to respond to the survey. The results presented in this manuscript are restricted to respondents who said they had received OCS treatment for their asthma.

Survey questionnaire

The online questionnaire was developed by Carenity, with the participation of two of the authors who are pulmonologists (Arnaud Bourdin, Dany Jaffuel), Caroline Fabry and Elsa Darnal from AstraZeneca and a patient with asthma registered on the Carenity community who was receiving continuous OCS treatment. The questionnaire contained 35 closed questions and 3 open questions organized around three themes: demographic and disease characteristics (23 closed

questions and 1 open question); perception of OCS treatment (6 closed questions and 2 open questions); and experience with OCS treatment (6 closed questions) (Supplementary material). Certain items were rated using a scale from 0 to 10. Verbatim answers to open-ended questions were grouped into themes.

Statistical analyses

Descriptive univariate and multivariate analyses were performed, as appropriate for the type of data. For univariate analyses, between-group differences were tested using Student's *t*-test or the Wilcoxon test (when $n < 30$ and the population was not normally distributed) for continuous data and the Chi-square test for categorical data. The 95% confidence intervals (CIs) of the mean were calculated assuming a standard normal distribution of the standard deviation. Excel 2013® was used to perform the descriptive analyses. RStudio® (v3.5.0) was used to perform statistical analyses. P values were calculated with a confidence interval of 95%. A p values <0.05 was considered to be statistically significant.

Results

From 11/10/2017 to 12/15/2017, 300/302 patients completed correctly the online questionnaire out of 3266 members of the Carenity Asthma Community who were invited to participate (Figure 1). The average questionnaire completion time was 18 min. For the analyses reported here, 32 respondents were excluded as they finally declared having never received OCS for their asthma.

Description of respondents and their OCS treatment

Patient characteristics

The overall mean age of the 268 included respondents was 49.9 years and 82% ($n = 219$) were women. Their geographical distribution covered the whole country. The mean age at diagnosis was 21.3 years and 57% ($n = 152$) of the respondents had been diagnosed before the age of 20. More than 63% ($n = 170$) of the respondents had been diagnosed with asthma more than 20 years earlier.

GINA control scores

The overall median GINA control score was 2.8; 66% ($n = 177$) of respondents had uncontrolled asthma (GINA control score of 3 or 4) and 9% ($n = 23$) had well-controlled asthma (GINA control score of 0). A summary of the symptoms reported by the respondents is presented in Appendix Table 1.

Unscheduled consultations and hospitalization in previous year

In the previous year, 59% ($n = 158$) of the respondents had reported at least one unscheduled medical visit for asthma and 27% ($n = 72$) had been hospitalized for >24 h. One hundred and twenty-four of the 158 respondents (78%) who had an unscheduled visit for asthma and 62 of the 72 respondents (86%) who were hospitalized for >24 h had uncontrolled asthma.

Medical care

Asthma care was managed by a hospital pulmonologist for 38% ($n = 102$) of respondents, by a community-based pulmonologist for 27% ($n = 73$) and by a general practitioner for 33% ($n = 88$). The mean number of visits per year was six (median: 3); on average 71% ($n = 191$) of the respondents visited their physician less than five times a year and 10% ($n = 26$) consulted at least eleven times a year.

Respondents with uncontrolled asthma were more frequently managed by a hospital pulmonologist (76/102; 75%) compared to a community-based pulmonologist (42/73; 58%; $p = 0.03$) or to a general practitioner (56/88; 64%; $p = 0.14$). The difference between those followed by a non-hospital pulmonologist and a general practitioner was statistically non-significant ($p = 0.53$). There was also a tendency for respondents who consulted their physician for asthma more often to have uncontrolled asthma ($p = 0.16$): 39/51 (76%) for those consulting 5–10 a year and 24/26 (92%) for those consulting ≥11 times.

During the previous year, 63% ($n = 168$) had received a fixed combination of inhaled corticosteroids (ICS) and long-acting beta-agonist (LABA), 49% ($n = 132$) were receiving ICS alone and 10% ($n = 27$) had been injected biological therapies.

OCS treatment

Overall, 22% ($n = 58$) were requiring long-term OCS (i.e.≥6/12 months), while 40% ($n = 107$) required repeated short-term OCS courses (i.e.≥2 courses of >3 days) (Table 1) over the previous year. Among them, 60% (64/107) were given between 2 and 4 courses, 26/107 (24%) received 5 or 6 and 17/107 (16%) received ≥7 courses of OCS. During the previous 12 months, 16% ($n = 43$) had received OCS for ≤3 days. Respondents followed by a hospital-based pulmonologist were more likely to be prescribed a long-term OCS treatment (Table 1). Respondents (46/58 (79%)) who were receiving long-term OCS treatment had even more uncontrolled asthma when compared to

Table 1. Oral corticosteroid treatment in the last 12 months as a function of coordinating physician, level of asthma control (GINA control score) and hospitalization or unscheduled consultation for asthma.

	Long-term course† $n=58$	≥2 short-term course‡ $n=107$	≤1 short-term course $n=43$	None $n=60$	*p*-value
Gender, *n* (%)					
Men $n=49$	7 (12)	11 (10)	15 (35)	16 (27)	0.001
Women $n=219$	51 (88)	96 (90)	28 (65)	44 (73)	
Age, mean					
Current age	50.8	49.8	50.0	49.1	NS
Diagnosis, mean					
Anteriority of diagnosis	27.0	28.5	29.2	27.3	NS
Age at diagnosis	23.3	20.8	20.1	21.3	NS
Coordinating physician, *n* (%)					
Hospital pulmonologist $n=102$	32 (55)	42 (39)	14 (33)	14 (23)	0.02
Non-hospital pulmonologist $n=73$	14 (24)	32 (30)	10 (23)	17 (28)	
General practitioner $n=88$	12 (21)	31 (29)	18 (42)	27 (45)	
GINA control score, *n* (%)					
Uncontrolled asthma (3 to 4) $n=177$	46 (79)	79 (74)	22 (51)	30 (50)	0.001
Partially controlled asthma (1 to 2) $n=68$	9 (16)	23 (21)	13 (30)	23 (38)	
Well-controlled asthma (0) $n=23$	3 (5)	5 (5)	8 (19)	7 (12)	
Hospitalization and unscheduled consultation, *n* (%)					
Hospitalization ≥24 h $n=72$	26 (45)	33 (31)	4 (9)	9 (15)	NS
Unscheduled consultation $n=158$	37 (64)	80 (75)	20 (47)	21 (35)	

†OCS treatment ≥6/12 months; ‡OCS treatment ≥ 2 short courses (>3 days) /12 months, NS: non-significant.

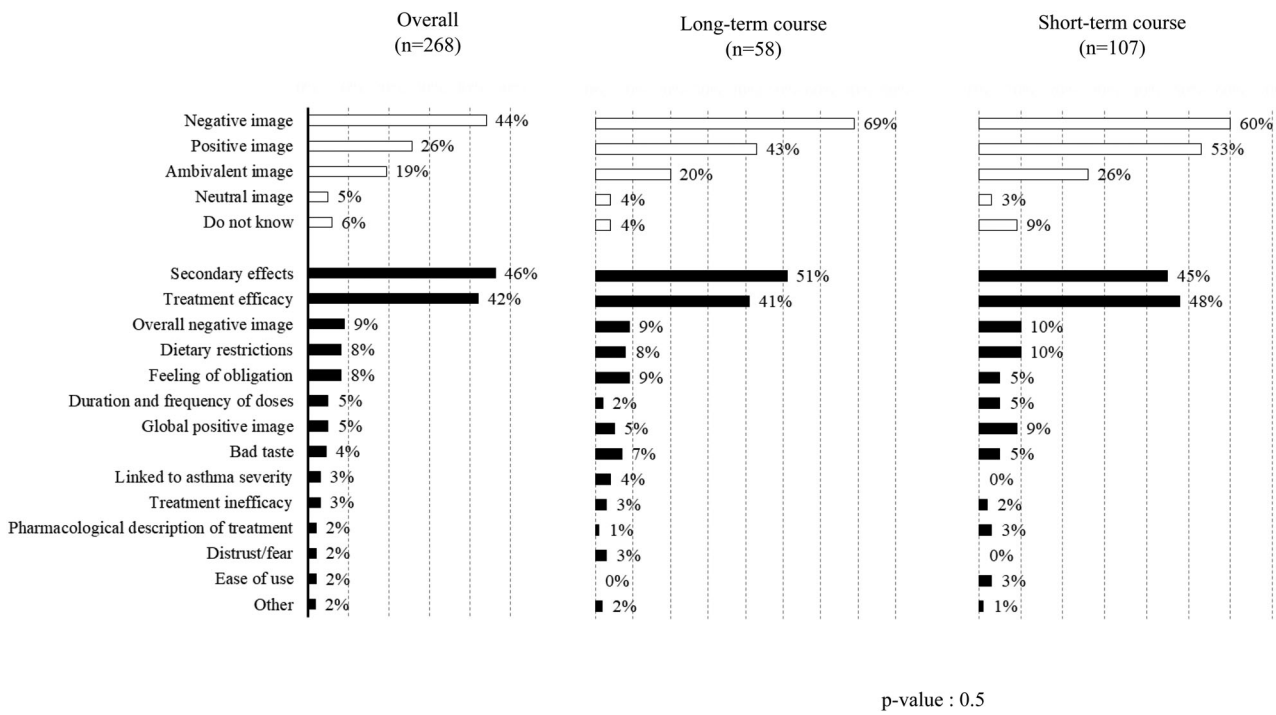

Figure 2. Summary of responses to open question about respondents' image of oral corticosteroid treatment. The question asked was: "Could you describe in a few words the image you have of cortisone tablets (corticosteroids)?" (in French "Pourriez-vous décrire en quelques mots l'image que vous avez de la cortisone en comprimés (corticoïdes)? ").

30/60 (50%) who did not require any OCS treatment for their asthma in the previous 12 months (Table 1).

A total of 61/150 (41%) respondents had a reserve OCS prescription. Respondents followed by a hospital-based pulmonologist tend to have more frequently a reserve OCS prescription (27/56 (48%)) compared with those followed by a community-based pulmonologist (15/42 (36%)) or a general practitioner (17/49 (35%)) ($p=0.29$).

Overall 71% ($n=190$) of respondents were also given antibiotics concomitant to the OCS treatment; 22% ($n=58$) reported this co-prescription to be systematic, 28% ($n=76$) occasional and 21% ($n=56$) rare. This was moreover true for respondents managed by a hospital or non-hospital-based pulmonologist (77/102 (76%) and 57/73 (78%), vs. 54/88 (61%) for those managed by their general practitioner).

Table 2. Perceptions of bothersome adjustments associated with oral corticosteroid treatment as a function of type of oral corticosteroid treatment (median scores out of 10 (range), with 10 being the most bothersome).

	Oral corticosteroid treatment in previous 12 months for asthma, median score (range)		
	Overall $n = 268$	Long-term course† $n = 58$	Short-term course‡ $n = 107$
Dietary modifications	7 (4-9)	7 (4-7)	7 (4-7)
More physician visits	5 (2-8)	5 (3-5)	5 (2-5)
Taking treatment daily	5 (2-9)	7 (2-7)	5 (1-5)
Adjustment of other treatments	5 (2-8)	8 (4-8)	4 (2-4)

†OCS treatment ≥6/12 months; ‡OCS treatment ≥ 2 short courses (>3 days) /12 months.

Table 3. Summary of oral corticosteroid-related adverse effects reported by respondents who had received oral corticosteroid treatment for asthma in the previous 12 months (n (%)).

	Overall $n = 268$ n (%)	Long-term course† $n = 58$ n (%)	Short-term course‡ $n = 107$ n (%)	p-value
Sleep disturbance	226 (84)	53 (91)	88 (82)	0.17
Fatigue	220 (82)	53 (91)	85 (79)	0.08
Behavioral changes	211 (79)	49 (84)	85 (79)	0.56
Weight gain	211 (79)	51 (88)	84 (79)	0.20
Swelling / bloated appearance	209 (78)	49 (84)	83 (78)	0.39
Skin disorders	188 (70)	48 (83)	74 (69)	0.09
Loss of muscular strength	175 (65)	46 (79)	68 (64)	0.06
Digestive problems	174 (65)	42 (72)	67 (63)	0.27
Risk of infection	162 (60)	41 (71)	65 (61)	0.27
High blood pressure	143 (53)	37 (64)	50 (47)	0.05
Bone fragility / osteoporosis	138 (51)	39 (67)	54 (50)	0.06
Vision problems	120 (45)	36 (62)	43 (40)	0.01*
Risk of stroke / infarction	111 (41)	30 (52)	44 (41)	0.25
Deregulation of diabetes control	102 (38)	26 (45)	40 (37)	0.44

†OCS treatment ≥6/12 months; ‡OCS treatment ≥ 2 short courses (>3 days) /12 months; * $p \leq 0.05$.

Respondents' perception of OCS treatment

In response to the following open question "Could you describe in a few words the image you have of cortisone tablets (corticosteroids)?" (in French "Pourriez-vous décrire en quelques mots l'image que vous avez de la cortisone en comprimés (corticoïdes)?") , 44% ($n = 118$) reported a negative image of OCS compared with 26% ($n = 69$) who said they had a positive image (Figure 2). Overall, 42% ($n = 113$) of the respondents perceived OCS treatment to be efficacious, although 46% ($n = 124$) spontaneously associated OCS treatment with adverse effects. Interestingly, more respondents on short-term courses had a negative image of OCS treatment (53/107; 50%) compared to those on long-term courses (20/58; 34%).

When respondents were spontaneously asked about the potential inconveniences of OCS treatment, adverse effects were cited as the main inconvenience (77%) followed by the need to adapt their lifestyle ($n = 26$, 10%) and factors related to its mechanism of action, for example interactions with other drugs, duration of action, and possible dependency ($n = 24$, 9%).

When respondents were asked to grade the inconveniences imposed by OCS treatments on a scale from 0 to 10, modification of diet was ranked as the most bothersome adjustment (median = 7/10, with 38% ($n = 102$) giving a rating between 8 and 10). This was followed by the requirement to take it daily (median = 5/10, $n = 75$, 28%), then by the need to attend more doctor visits (median = 5/10, $n = 59$, 22%). The need to adapt other treatments, such as insulin for diabetes or pills to control blood pressure but also contraceptives and vaccinations came after. Respondents requiring long-term OCS gave higher median scores (the higher the worst) for the need to observe the treatment daily and to adapt other treatments (Table 2).

Patients' experience with OCS treatment

Efficacy

Quite unexpectedly, respondents expressed globally to be satisfied with their OCS treatments (median general satisfaction score: 7.0 on a scale from 0 to 10), particularly with their efficacy (median general satisfaction score: 8.0). Respondents receiving long-term or short-term courses reported nearly similar levels of efficacy of OCS (median scores of 8.0 and 9.0, respectively).

Adverse effects

Respondents reported many adverse effects due to OCS (Table 3). The most frequently reported adverse effects were sleep disturbance ($n = 226$, 84%), fatigue ($n = 220$, 82%) and behavioral changes ($n = 211$, 79%). Worries about increased risks of stroke or infarction ($n = 111$, 41%) and uncontrolled diabetes ($n = 102$, 38%) were the least frequently reported adverse

Table 4. Assessment of the impact of oral corticosteroid-related adverse effects on well-being (0 = no impact; 10= very significant impact).

	Oral corticosteroid treatment in previous 12 months for asthma, median score (range)		
Adverse effects	Overall $n = 268$	Long-term course† $n = 58$	Short-term course‡ $n = 107$
Sleep disturbance	7 (3-9)	7 (3-9)	8 (5-9)
Fatigue	6 (2-8)	7 (4-8)	5 (2-8)
Behavioral changes	6 (3-9)	7 (3-9)	6 (3-9)
Weight gain	7 (4-10)	8 (5-10)	8 (4-10)
Swelling / bloated appearance	7 (4-10)	7 (5-10)	7 (4-10)
Skin disorders	6 (3-8)	7 (4-10)	6 (3-8)
Loss of muscular strength	5 (2-8)	5 (2-9)	4 (2-8)
Digestive problems	5 (1-8)	7 (4-9)	6 (3-8)
Risk of infection	5 (1-8)	7 (3-10)	5 (3-8)
High blood pressure	5 (1-8)	6 (0-9)	5 (1-8)
Bone fragility / osteoporosis	6 (1-9)	7 (4-10)	6 (2-9)
Vision problems	4 (0-8)	4 (1-7)	5 (1-9)
Risk of stroke / infarction	3 (0-8)	4 (0-8)	4 (0-8)
Deregulation of diabetes control	3 (0-8)	7 (1-10)	3 (0-8)

†OCS treatment ≥6/12 months; †OCS treatment ≥ 2 short courses (>3 days) /12 months.

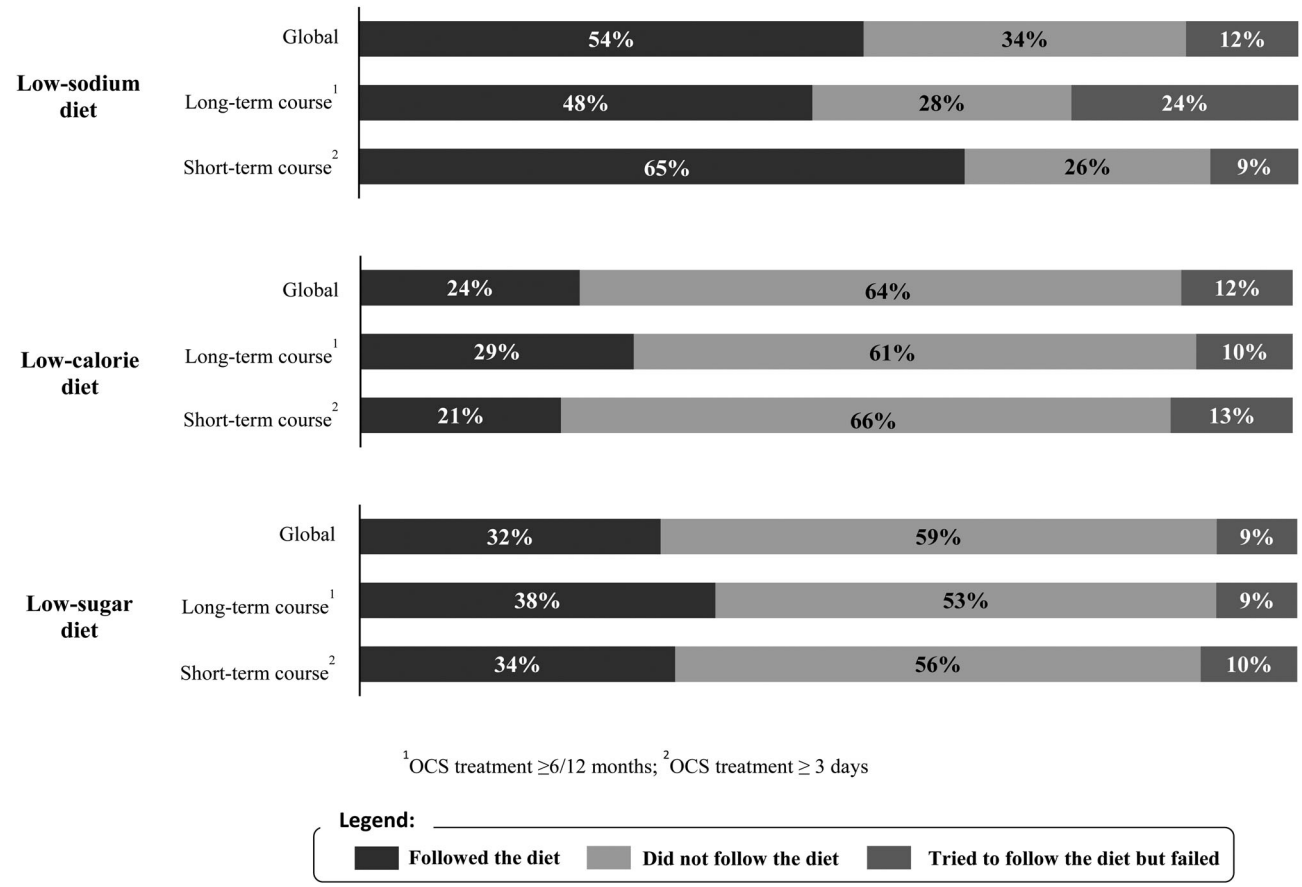

Figure 3. Aspects of diet requirements associated with oral corticosteroid (OCS) treatment in the overall study population ($n = 268$), in those requiring long-term ($n = 58$) and repeated short-term OCS treatments ($n = 107$).

effects. Respondents exposed to short-term bursts frequently reported adverse effects, but at a lower frequency than respondents on long-term treatment (Table 3). Fatigue, skin disorders, loss of muscular strength, high blood pressure, bone fragility/osteoporosis and vision concerns were more frequently reported by long-term OCS users.

When respondents experienced adverse effects, they were asked to grade the impact of each adverse effect on their well-being on a scale from 0 (no impact) to 10 (very important impact). This was found to be unaffected by the duration of OCS treatment (Table 4). Additionally, respondents reported that they were relatively dissatisfied with

the information they had received on OCS-related long-term adverse effects and their management (median score for both: 4/10).

Inconveniences associated with OCS treatment

Overall, 54% ($n = 114$) said they followed a low-sodium diet when they were receiving OCS treatment as 32% ($n = 86$) followed a low-sugar diet and 24% ($n = 63$) a low-calorie diet (Figure 3). 12% ($n = 32$) of respondents reported being unsuccessful at adopting a low-sodium or low-calorie diet compared to 9% ($n = 23$) for low-sugar diet. Respondents receiving long-term therapy failed to follow a low-sodium diet (14/58; 24%) more frequently ($p = 0.02$) than respondents on short-term therapy (10/107; 9%).

Adherence to prescribed OCS treatment

Only 37% ($n = 99$) of the respondents declared that they had completely respected their latest OCS prescription with respect to both dose and duration (Appendix Table 2), with 85% ($n = 229$) of the respondents saying they had respected the duration of their latest OCS prescription. Most of the respondents who had not respected the duration had reduced it. Poor adherence to the treatment duration was unaffected by the level of asthma control according to the GINA control scores.

Moreover, 44% ($n = 117$) of the respondents reported their willingness to reduce the dose and 34% ($n = 90$) had wanted to stop OCS treatment, even though 19% ($n = 52$) said they did actually reduce the dose and 15% ($n = 41$) that they did stop their OCS treatment without consulting their doctor or against their doctor's advice.

Fear of long-term adverse effects was the main reason for wanting to reduce OCS treatment (70/133, 53%), followed by the severity of the adverse effects (66/133, 50%) and their asthma being controlled (57/133, 43%). Among the respondents who wanted to stop OCS treatment, only 9/102 (9%) wanted to stop because of lack of efficacy. The main reasons for stopping were the severity of adverse effects (57/102, 56%), fear of long-term adverse effects (50/102, 49%), and current asthma control (32/102, 31%).

Respondents' responses and actions when facing a prescription of oral corticosteroid

Almost half the respondents not requiring long-term OCS said they would have a very negative reaction if their physician were to prescribe them long-term OCS. Only 15% (35/230) said they would take the treatment without doing anything else, whereas 42% (97/230) acknowledged they would try to find an alternative treatment, and 34% (78/230) would seek advice from another healthcare professional or look for additional information on OCS treatment (Figure 4). The mean

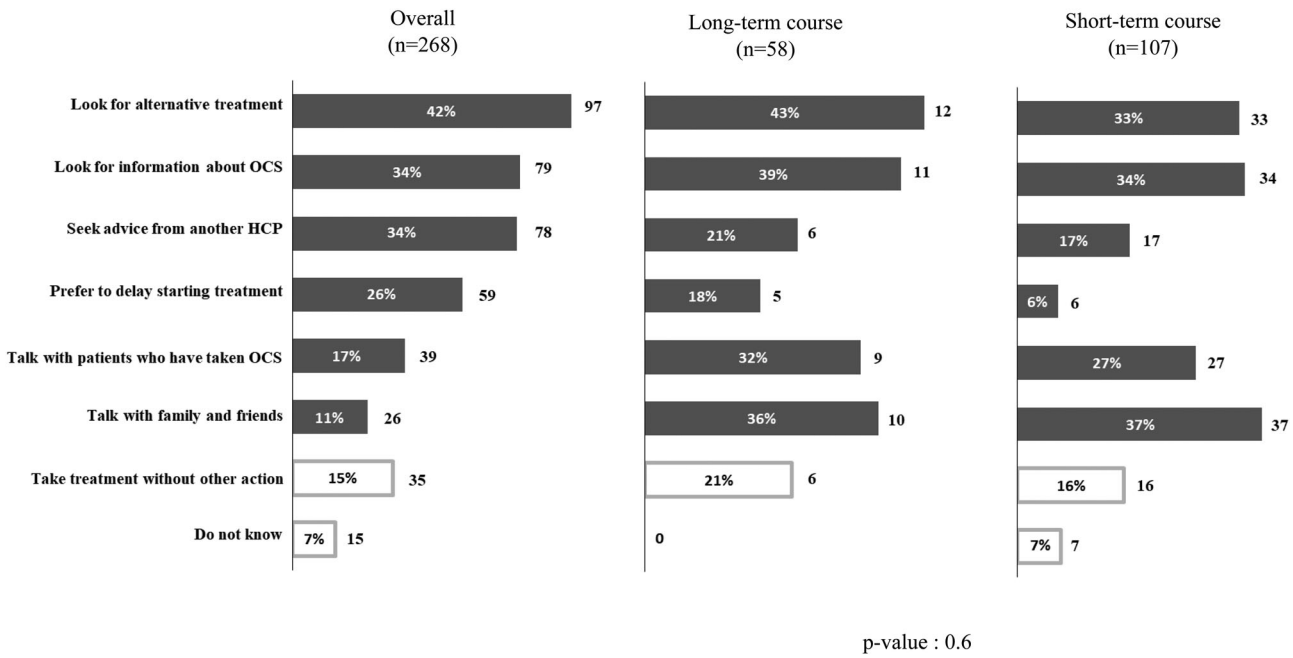

Figure 4. Reported responses and actions of respondents not receiving oral corticosteroids continuously if they were prescribed oral corticosteroid by their physician again (more than one response was possible).

number of actions that would be undertaken was 1.7, and 68 respondents (30%) said they would undertake ≥3 of the proposed actions.

Discussion

It is known that the OCS treatment is associated with an increased risk of adverse effects and that patients' perceptions of OCS treatment can differ, depending on their experience (29–31). To our knowledge, this is one of the first studies to provide real-world perspectives on how patients with asthma perceive the benefits and risks of their OCS treatment and how this perception could affect their adherence to the treatment. Given the inclusion criteria, the studied population likely fits with the one eligible to biologics as these patients report frequent if not permanent OCS exposure and poor levels of asthma control.

The results from this survey of volunteer members of an online asthma community, who were receiving or had received OCS treatment for their asthma, showed that although more than 40% of respondents perceived OCS treatment to be efficacious, numerous adverse effects were reported, such as sleep disturbances (84%), fatigue (82%) and behavioral changes (79%). Short-term (such as weight gain or fatigue) and long-term (such as cardiovascular risks or osteoporosis) adverse effects associated with OCS treatment have been described in several studies (32–34).

Patients requiring long-term OCS treatment reported more adverse effects, in terms of both the type of adverse effects experienced and the impact on their well-being. Nevertheless, more patients receiving repeated short-term courses reported a negative image of OCS treatment. This would suggest that patients on long-term treatment are more ready to cope with adverse effects because of their perception of OCS efficacy on the severity of their asthma. Potentially, these patients may have neglected the connection between some of their comorbidities and the OCS (such as diabetes or increased risks of stroke/infarction).

Differences between patients' and doctors' perceptions of the significance of these various adverse effects have been reported (28,35). In our study, patients were not satisfied with the information on adverse effects provided by their doctor. It has been shown that clinicians underestimate the impact of some of the effects of OCS, such as mood and sleep disturbances, on patients' well-being, whereas patients seem to be more concerned about these effects and in particular want to be better informed on their impact and their management (35). Shared-decision making is advocated by all patient organizations and the European Lung Foundation.

In addition to adverse effects, numerous inconveniences associated with OCS treatment were reported in our study, such as the need to observe the OCS treatment daily, having to adapt their medical management and having to change their diet. 12% of respondents reported failures to follow a low-sodium or low-calorie diet, compared with 9% for a low-sugar diet. Respondents receiving long-term OCS treatment failed to follow a low-sodium diet more frequently than patients receiving repeated bursts.

It has been suggested that corticosteroid-sparing alternatives should be considered to avoid poor adherence to OCS and potential adverse effects (17,31). IL5-targeting drugs such as mepolizumab and more recently benralizumab and dupilumab evidenced their impressive OCS-sparing effects (36) when given to severe asthma patients who were requiring repeated bursts (demonstrated in trials: SIROCCO, CALIMA, MENSA, Liberty asthma QUEST) (37–40) or maintenance OCS treatments (demonstrated in the trials: SIRIUS, ZONDA, Liberty asthma VENTURE) (41–43). Insufficient or inaccurate awareness of OCS harmfulness especially on the long term may limit access to these biologics. Noteworthy, this awareness should also be raised at managing physicians' level to prevent them "stocking" patients with OCS. When considering the well-established risks of maintenance OCS regimens, now clearly acknowledged in GINA, we considered the present results as another argument supporting the need for referral to asthma expert centers. We acknowledged that we missed the opportunity to ask whether these patients were tested for eligibility to biologics (i.e.skin prick tests, blood eosinophil count, FeNO). It has to be noted that biological therapies are high cost treatments and are not the only alternatives to OCS treatments (ICS-LABA for instance). In our study, respondents reported having developed strategies such as reducing the dose or duration of treatment. Overall, 26% of respondents had previously reduced or stopped their OCS therapy; this was also reported by 22% and 36% of those receiving short-term and long-term OCS, respectively. 42% of the respondents not receiving long-term OCS said they would seek an alternative if they were prescribed long-term OCS. However, prior to initiating an alternative treatment, it is essential to evaluate adherence to treatment (44). Targeted communication about long-term adverse effects might also be useful to encourage switching from OCS to biological therapies.

We acknowledge some limitations inherent to the design of our survey. For example, we surveyed patients with asthma via Internet which allowed us to obtain real-world data on their perception of and concerns about their OCS treatment and its impact on their well-being. Belonging to a patient community likely reflects the need to self-assess and compare the level of the disease. Poorly controlled, highly symptomatic and heavily treated patients may then be over-represented and our findings should be extrapolated only cautiously. However, the majority of people use the Internet and a large proportion use it for health-related research. In 2018, 75% of French people said they used the Internet every day, and 46% of them used the Internet to look for health-related information (45). Moreover, it has been shown that Carenity communities, when compared with the SNIIRAM database (an exhaustive massive claim database available in France where all individual refunding acts are listed but without any disease-related information), reflect the main characteristics of online users willing to share their experience with a disease, with an over-representation of female patients aged from 25 to 54 (46). Furthermore, as we used a non-probabilistic sampling approach, we may have a selection bias with an over-representation of patients willing to participate. The study sample was relatively representative of the target population in terms of age, gender, geographical area and type of care received. However, the number of participants is relatively small, and patients are unlikely to be representative of all patients with asthma in France.

As with any study relying on self-report of disease status, there is also a risk of incorrect asthma diagnoses. It is recognized that the diagnosis of asthma can be difficult due to the large number of phenotypes with different triggers that have been identified (47). However, the respondents' mean age at diagnosis (21.3 years, 57% of them were diagnosed before the age of 20 years) and the date of diagnosis (asthma diagnoses had been made more than 28 years prior for 46% of the respondents) lead us to think that most of the asthma diagnoses were correct.

Conclusions

This study provides original information on patients' perception of OCS treatment for asthma, showing that OCS-related complications are a major concern for them, and these can lead them to delay treatment and even encourage them to look for alternative treatments.

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Appendix Table 1. Summary of symptoms used to calculate GINA control scores.

	Daytime symptoms > 2 per week *n* (%)	Nocturnal symptoms *n* (%)	Need for rescue treatment > 2 per week *n* (%)	Limitations of activity *n* (%)
Yes	211 (79)	176 (66)	168 (63)	205 (76)
No	57 (21)	92 (34)	100 (37)	63 (24)

Appendix Table 2. Reported modifications (dose reduction or treatment discontinuation) to the respondent's last OCS treatment.

	Reported modifications (dose reduction or treatment discontinuation) to the respondent's last OCS treatment)		
	Overall *n* = 268 *n* (%)	Long-term course[†] *n* = 58 *n* (%)	Short-term course[‡] *n* = 107 *n* (%)
I have asked my doctor to prescribe OCS treatment only during my flare-ups and not as a long-term treatment	78 (29)	18 (31)	27 (25)
I have asked my doctor to replace my OCS treatment with another treatment	54 (20)	13 (22)	16 (15)
I have reduced my dose of OCS without asking my doctor or against my doctor's advice	52 (19)	13 (22)	19 (18)
I have stopped my OCS treatment without asking my doctor or against my doctor's advice	41 (15)	15 (26)	12 (11)
I have asked my doctor to reduce my dose of OCS	39 (15)	10 (17)	15 (14)
I have asked my doctor to stop my OCS treatment	37 (14)	10 (17)	15 (14)
I wanted to reduce my dose of OCS treatment but I never asked my doctor	36 (13)	9 (16)	14 (13)
I wanted to stop my OCS treatment but I never asked my doctor	32 (12)	12 (21)	10 (9)

[†]OCS treatment $\geq$6/12 months; [†]OCS treatment $\geq$ 2 short courses (>3 days) /12 months.

carenity
L'avis des patients

Enquête sur la perception des corticothérapies orales par les patients asthmatiques

A. PROFIL DES REPONDANTS

1. **Vous êtes :**
   (1 seule réponse possible)
   - ☐ Un homme
   - ☐ Une femme

2. **Votre année de naissance :**
   [Champ année] **[FIN ENQUETE si âge <18 ans]**

3. **Votre code postal :**
   [5 chiffres]

4. **Vous êtes :**
   (1 seule réponse possible)
   - ☐ Patient asthmatique
   - ☐ Non concerné par l'asthme **[FIN D'ENQUETE]**

5. **Quand votre asthme a-t-il été diagnostiqué ?**
   Si vous ne vous souvenez pas du mois, merci de nous donner votre meilleure estimation.
   [ ] Menu déroulant mois / année

6. **Au cours des 4 dernières semaines :**

** Les traitements de crise sont par exemple la Ventoline, le Bricanyl ou tout traitement équivalent.*
*** On entend par « activités » l'ensemble des activités quotidiennes : tâches ménagères, activité professionnelle, scolaire, etc.*
(1 seule réponse par ligne)

	Oui	**Non**
Avez-vous présenté des symptômes d'asthme **durant la journée** plus de deux fois par semaine ?	○	○
Avez-vous été réveillé(e) la **nuit à cause de votre asthme** ?	○	○
Avez-vous eu besoin d'un traitement aigu (traitement de crise*) plus de 2 fois par semaine ?	○	○
Votre asthme vous a-t-il limité dans vos activités**?	○	○

7. **Qui coordonne le suivi de votre asthme ?**
(1 seule réponse possible)
   - ☐ Médecin généraliste
   - ☐ Pneumologue en cabinet de ville
   - ☐ Pneumologue à l'hôpital
   - ☐ Autre *[Précisez]*

8. **En moyenne, combien de consultations par an avez-vous pour votre asthme ?**
[ ] Champ numérique

9. **<u>Au cours des 12 derniers mois</u>, avez-vous :**
(1 seule réponse par ligne)

	Oui	**Non**
Eté hospitalisé plus de 24h **<u>à cause de votre asthme</u>**	○	○
Consulté en urgence (consultation non programmée chez votre pneumologue, médecin généraliste, ou admission aux urgences) **<u>à cause de votre asthme</u>**	○	○

<u>INTERCALAIRE :</u>
Dans la suite du questionnaire, nous allons vous poser des questions sur les traitements de l'asthme, et en particulier sur la cortisone prise en comprimés (corticoïdes).
La cortisone en comprimés (corticoïdes) correspond aux médicaments suivants : Betaméthasone, Betnesol, Célestene, Cortancyl, Dectancyl, Medrol, Prednisolone, Prednisone, Solupred.

10. **Au cours des 12 derniers mois, à quelle fréquence avez-vous pris de la cortisone en comprimés (corticoïdes) <u>pour votre asthme ou pour traiter une bronchite</u> ?**
(1 seule réponse possible)
   - ☐ J'en ai pris tous les jours **>Q15**
   - ☐ J'en ai pris au moins 6 mois sur les 12 derniers mois **>Q15**
   - ☐ J'ai fait une ou plusieurs cures de cortisone en comprimés de plus de 3 jours sur les 12 derniers mois **>Q11**
   - ☐ J'en ai pris 3 jours ou moins sur les 12 derniers mois **>Q15**
   - ☐ J'en ai pris par le passé, mais je n'en ai pas pris sur les 12 derniers mois **>Q18**
   - ☐ Je n'ai jamais pris de cortisone en comprimés (corticoïdes) pour mon asthme **>Q12**

11. **<u>Au cours des 12 derniers mois</u>, combien de cures de cortisone en comprimés (corticoïdes) de plus de 3 jours avez-vous faites ? >Q15**
[ ] Champ numérique (minimum = 1)

[Les Q12 à Q14 concernent uniquement les patients n'ayant jamais pris de cortisone en comprimés (corticoïdes) pour leur asthme]

12. **Votre médecin vous a-t-il déjà proposé de prendre de la cortisone en comprimés (corticoïdes) pour votre asthme ?**
    (1 seule réponse possible)
    - ☐ Oui
    - ☐ Non **>Q22**
    - ☐ Je ne connais pas ce traitement **[FIN ENQUÊTE]**

13. **Pour quelles raisons n'avez-vous pas pris de cortisone en comprimés (corticoïdes) pour votre asthme ?**
    (1 seule réponse possible)
    - ☐ Mon médecin me l'a proposé mais après discussion, nous avons décidé que je ne prendrais pas ce traitement **>Q22**
    - ☐ Mon médecin me l'a proposé mais je n'ai pas accepté de le prendre **>Q14**
    - ☐ Mon médecin me l'a prescrit, mais je ne l'ai pas pris **>Q14**
    - ☐ Autre *[Précisez]* **>Q22**

14. **Pourquoi n'avez-vous pas souhaité prendre de la cortisone en comprimés (corticoïdes) pour votre asthme ?**
    Merci de détailler votre réponse.

Champ libre

[Les questions 15 à 17 concernent uniquement les patients ayant pris de la cortisone en comprimés (corticoïdes) pour leur asthme au cours des 12 derniers mois]

15. **Prenez-vous actuellement de la cortisone en comprimés (corticoïdes) ?**
    (1 seule réponse possible)
    - ☐ Oui, je suis actuellement une cure de cortisone en comprimés (15 jours ou moins) **>Q18**
    - ☐ Oui, je prends de la cortisone en comprimés comme traitement au long cours **>Q16**
    - ☐ Non **>Q17**

16. **Quand avez-vous commencé à prendre de la cortisone en comprimés (corticoïdes) de façon continue ? >Q18**
    Merci d'indiquer le moment où vous avez débuté votre traitement actuel (prise de cortisone en comprimés sans interruption). Si vous ne vous souvenez pas du mois, merci de nous donner votre meilleure estimation.
    [ ] Menu déroulant mois / année

17. **La dernière fois que vous avez pris de la cortisone en comprimés (corticoïdes), combien de temps cela a-t-il duré ?**
    (1 seule réponse possible)
    - ☐ Moins de 15 jours
    - ☐ Entre 15 jours et 1 mois
    - ☐ Entre 1 et 3 mois
    - ☐ Entre 3 et 6 mois
    - ☐ Plus de 6 mois

[Les questions 18 et 19 concernent uniquement les patients ayant déjà pris une corticothérapie orale pour leur asthme]

18. **La dernière fois que vous avez pris de la cortisone en comprimés (corticoïdes) pour votre asthme, vous avez :**
    (1 seule réponse possible)
    - ☐ Respecté la durée de la prescription **>Q20**
    - ☐ Pris le traitement moins longtemps que la durée prescrite
    - ☐ Pris le traitement plus longtemps que la durée prescrite

19. **Etait-ce la première fois que vous gériez la durée de prise de cortisone en comprimés (corticoïdes) vous-même ?**
    (1 seule réponse possible)
    - ☐ Oui
    - ☐ Non, cela m'est arrivé de temps en temps
    - ☐ Non, cela m'arrive systématiquement

[La Q20 concerne uniquement les patients prenant ou ayant pris de la cortisone en cure pour leur asthme sur les 12 derniers mois]

20. **Votre médecin vous prescrit-il parfois une ordonnance de réserve pour de la cortisone en comprimés, c'est-à-dire un traitement que vous êtes libre de prendre ou non en cas de besoin ?**
    (1 seule réponse possible)
    - ☐ Oui
    - ☐ Non

[La Q21 concerne uniquement les patients prenant ou ayant pris des corticoïdes oraux pour leur asthme.]

21. **Lorsque vous prenez de la cortisone en comprimés (corticoïdes) pour votre asthme, prenez-vous en même temps des antibiotiques ?**
    (1 seule réponse possible)
    - ☐ Oui, systématiquement
    - ☐ Oui, de temps en temps
    - ☐ Oui, mais rarement
    - ☐ Non, jamais
    - ☐ Je ne sais pas

22. **Avez-vous déjà pris de la cortisone en comprimés (corticoïdes) pour d'autres raisons que votre asthme ou des bronchites ?**
    (1 seule réponse possible)
    - ☐ Oui, pendant une ou plusieurs périodes de plus de 15 jours
    - ☐ Oui, pendant une ou plusieurs périodes de moins de 15 jours
    - ☐ Non

23. <u>Durant les 12 derniers mois,</u> avez-vous pris l'un des médicaments suivants pour votre asthme ?
(Plusieurs réponses possibles)

**Les corticoïdes inhalés sont les médicaments suivants : Acorspray, Alvesco, Asmabec Clickhaler, Asmanex Twisthaler, Beclojet, Béclométasone, Beclone, Beclospin, Beclospray, Becotide, Bemedrex Easyhaler, Budésonide, Ecobec, Flixotide, Flixotide Diskus, Miflasone Aérolizer, Miflonil Aérolizer, Novopulmon Novolizer, Pulmicort, Pulmicort Turbuhaler, Qvar Autohaler, Qvarspra.*
*** Les médicaments qui associent corticoïdes inhalés et bronchodilatateur sont les suivants : Duoresp Spiromax, Flutiform, Formodual, Formodual Nexthaler, Innovair, Innovair Nexthaler, Relvar Ellipta, Sérétide, Sérétide Diskus, Symbicort Turbuhaler.*

- ☐ Une biothérapie (Xolair, Nucala)
- ☐ Des corticoïdes inhalés*
- ☐ Un médicament qui associe corticoïdes inhalés et bronchodilatateur**
- ☐ Je n'ai pris aucun des médicaments ci-dessus

[La Q24 est uniquement pour les patients ayant répondu des corticoïdes inhalés ou une association fixe. La Q24 sera posée deux fois si le patient a pris des corticoïdes inhalés et une association fixe au cours des 12 derniers mois.]

24. A quelle fréquence prenez-vous [Réponse_Q23] ?
(Plusieurs réponses possibles)

- ☐ Tous les jours (traitement de fond)
- ☐ Uniquement pendant les périodes où je risque de faire une crise
- ☐ En cas de crise d'asthme
- ☐ Autre *[Préciser]*

B. PERCEPTION DE LA CORTICOTHERAPIE ORALE PAR LES PATIENTS PRENANT OU NON DES CORTICOÏDES ORAUX

25. Pourriez-vous décrire en quelques mots l'image que vous avez de la cortisone en comprimés (corticoïdes) ?
*Dans cette question, nous souhaiterions connaître **les mots qui vous viennent à l'esprit** lorsque vous pensez à la cortisone en comprimés (corticoïdes).*
Merci de détailler votre réponse.

Champ libre

26. Selon vous, quels peuvent être les inconvénients ou contraintes liés à la prise de cortisone en comprimés (corticoïdes) ?
Merci de détailler votre réponse.

Champ libre

27. Comment évalueriez-vous l'impact général de la prise de cortisone sous forme de comprimés (corticoïdes) sur la qualité de vie ?

(1 seule réponse par ligne)
0=Pas d'impact, 10=Impact très important

	0	1	2	3	4	5	6	7	8	9	10	Ne sait pas
Impact sur la qualité de vie	○	○	○	○	○	○	○	○	○	○	○	○

[La question 28 concerne uniquement les répondants ayant déjà pris des corticoïdes oraux]

28. Lorsque vous prenez de la cortisone en comprimés (corticoïdes), ressentez-vous les potentiels inconvénients suivants ? Si oui, quel est leur impact sur votre bien-être ?

Si vous n'avez pas expérimenté la situation décrite, merci de cocher « non concerné ». Dans le cas contraire, merci d'évaluer l'impact de cette situation sur votre bien-être :
0=aucun impact, 10=impact très important
(1 seule réponse par ligne)

	Non concerné*	0	1	2	3	4	5	6	7	8	9	10
Prise de poids	○	○	○	○	○	○	○	○	○	○	○	○
Rétention d'eau/gonflement/aspect bouffi	○	○	○	○	○	○	○	○	○	○	○	○
Fatigue	○	○	○	○	○	○	○	○	○	○	○	○
Perturbation du sommeil	○	○	○	○	○	○	○	○	○	○	○	○
Modification du comportement (surexcitation, agitation)	○	○	○	○	○	○	○	○	○	○	○	○
Fragilisation de la peau/problèmes cutanés	○	○	○	○	○	○	○	○	○	○	○	○
Perturbation du diabète/Impact sur le contrôle du diabète	○	○	○	○	○	○	○	○	○	○	○	○
Hypertension	○	○	○	○	○	○	○	○	○	○	○	○
Problèmes à l'estomac (troubles digestifs, douleurs, ulcères, gastrites…)	○	○	○	○	○	○	○	○	○	○	○	○
Fragilisation des os/ostéoporose	○	○	○	○	○	○	○	○	○	○	○	○
Problèmes visuels (glaucome, cataracte)	○	○	○	○	○	○	○	○	○	○	○	○
Perte de force musculaire	○	○	○	○	○	○	○	○	○	○	○	○
Baisse des défenses immunitaires/Risque d'infection	○	○	○	○	○	○	○	○	○	○	○	○
Risque d'AVC/infarctus	○	○	○	○	○	○	○	○	○	○	○	○

[La question 28bis. concerne uniquement les répondants n'ayant jamais pris de corticoïdes oraux]

28bis. Selon vous, quel est l'impact de la cortisone en comprimés (corticoïdes) sur le bien-être des patients qui utilisent ce traitement ?
(1 seule réponse par ligne)
0=aucun impact, 10=impact très important

	Ne sait pas	0	1	2	3	4	5	6	7	8	9	10
Prise de poids	○	○	○	○	○	○	○	○	○	○	○	○
Rétention d'eau/gonflement/aspect bouffi	○	○	○	○	○	○	○	○	○	○	○	○
Fatigue	○	○	○	○	○	○	○	○	○	○	○	○
Perturbation du sommeil	○	○	○	○	○	○	○	○	○	○	○	○
Modification du comportement (surexcitation, agitation)	○	○	○	○	○	○	○	○	○	○	○	○
Fragilisation de la peau/problèmes cutanés	○	○	○	○	○	○	○	○	○	○	○	○
Perturbation du diabète/Impact sur le contrôle du diabète	○	○	○	○	○	○	○	○	○	○	○	○
Hypertension	○	○	○	○	○	○	○	○	○	○	○	○
Problèmes à l'estomac (troubles digestifs, douleurs, ulcères, gastrites…)	○	○	○	○	○	○	○	○	○	○	○	○
Fragilisation des os/ostéoporose	○	○	○	○	○	○	○	○	○	○	○	○
Problèmes visuels (glaucome, cataracte)	○	○	○	○	○	○	○	○	○	○	○	○
Perte de force musculaire	○	○	○	○	○	○	○	○	○	○	○	○
Baisse des défenses immunitaires/Risque d'infection	○	○	○	○	○	○	○	○	○	○	○	○
Risque d'AVC/infarctus	○	○	○	○	○	○	○	○	○	○	○	○

29. Selon vous, dans quelle mesure les situations suivantes liées à la prise de cortisone en comprimés (corticoïdes) sont-elles contraignantes ?
(1 seule réponse par ligne)
0=Pas contraignant, 10=Très contraignant

	Non concerné / Ne sait pas	0	1	2	3	4	5	6	7	8	9	10
Adaptation du régime alimentaire	○	○	○	○	○	○	○	○	○	○	○	○
Suivi médical plus fréquent	○	○	○	○	○	○	○	○	○	○	○	○
Prise quotidienne de comprimés	○	○	○	○	○	○	○	○	○	○	○	○
Adaptation de la prise en charge médicale (contraception, vaccination, diabète, hypertension)	○	○	○	○	○	○	○	○	○	○	○	○

[Les Q30 et Q31 ne concernent que les patients ayant déjà pris des corticoïdes oraux, mais qui ne sont pas sous traitement en continu actuellement.]

30. Quel serait votre sentiment si votre médecin vous prescrivait de la cortisone en comprimés (corticoïdes) sur plusieurs mois ?
(1 seule réponse par ligne)
0=Sentiment très négatif, 10=Sentiment très positif

	Ne sait pas	0	1	2	3	4	5	6	7	8	9	10
Sentiment général	○	○	○	○	○	○	○	○	○	○	○	○

31. Si votre médecin vous prescrivait de la cortisone en comprimés (corticoïdes) sur plusieurs mois, quelle serait votre démarche ?
(Plusieurs réponses possibles, items randomisés)

- ☐ Je suivrais la prescription sans démarche supplémentaire
- ☐ J'en parlerais à d'autres professionnels de santé (pharmacien, autres médecins…)
- ☐ Je rechercherais de l'information sur ce traitement
- ☐ J'échangerais avec d'autres patients ayant déjà bénéficié de ce traitement
- ☐ J'en parlerais à mon entourage
- ☐ J'essaierais de retarder la prise de cortisone en comprimés
- ☐ J'essaierais de trouver un autre traitement
- ☐ Autre *[Préciser]*
- ☐ Ne sait pas

C. Retour d'expérience et comportement des patients sous corticothérapie orale

[La partie C concerne uniquement les patients ayant déjà pris une corticothérapie orale]

32. Lorsque vous êtes sous cortisone en comprimés (corticoïdes), suivez-vous :
(1 seule réponse par ligne)

	Oui	Non	J'ai essayé mais je n'ai pas réussi
Un régime hyposodé (restreint en sel)	○	○	○
Un régime hypocalorique (restreint en calories)	○	○	○
Un régime hypoglucidique (restreint en sucre)	○	○	○

33. Quel est votre niveau de satisfaction concernant la cortisone en comprimés (corticoïdes) ?
(1 seule réponse par ligne)
0=très insatisfait, 10=très satisfait

	Ne sait pas	0	1	2	3	4	5	6	7	8	9	10
Efficacité	○	○	○	○	○	○	○	○	○	○	○	○
Facilité de prise	○	○	○	○	○	○	○	○	○	○	○	○
Fréquence de prise	○	○	○	○	○	○	○	○	○	○	○	○
Satisfaction générale	○	○	○	○	○	○	○	○	○	○	○	○

34. Quel est votre niveau de satisfaction vis-à-vis de l'information donnée par votre médecin lorsqu'il vous a prescrit de la cortisone en comprimés (corticoïdes) pour la première fois ?
(1 seule réponse par ligne)
0=très insatisfait, 10=très satisfait

	0	1	2	3	4	5	6	7	8	9	10
Information sur les objectifs du traitement	○	○	○	○	○	○	○	○	○	○	○
Information sur les modalités de prise (durée, évolution du dosage…)	○	○	○	○	○	○	○	○	○	○	○
Information sur les effets indésirables à court terme	○	○	○	○	○	○	○	○	○	○	○
Information sur les effets indésirables à long terme	○	○	○	○	○	○	○	○	○	○	○
Conseils pour la gestion des effets indésirables/ mesures à adopter lors de la prise du traitement	○	○	○	○	○	○	○	○	○	○	○
Satisfaction générale par rapport à l'information reçue	○	○	○	○	○	○	○	○	○	○	○

35. Merci d'indiquer l'ensemble des situations dans lesquelles vous vous êtes déjà trouvé alors que vous preniez de la cortisone en comprimés (corticoïdes).
(Plusieurs réponses possibles)

- ☐ Il m'est arrivé de vouloir diminuer ma dose de cortisone mais je n'en ai jamais parlé à mon médecin **>Q36**
- ☐ J'ai déjà demandé à mon médecin de diminuer ma dose de cortisone **>Q36**
- ☐ J'ai déjà diminué ma dose de cortisone sans en parler à mon médecin ou contre l'avis de mon médecin**>Q36**
- ☐ J'ai déjà demandé à mon médecin de me prescrire de la cortisone uniquement lors de mes crises et pas en traitement de fond (traitement quotidien) **>Q36**
- ☐ J'ai déjà demandé à mon médecin de remplacer ma cortisone par un autre traitement **>Q36bis**
- ☐ Il m'est arrivé de vouloir arrêter de prendre de la cortisone mais je n'en ai pas parlé à mon médecin **>Q36bis**
- ☐ J'ai déjà demandé à mon médecin d'arrêter de prendre de la cortisone **>Q36bis**
- ☐ J'ai déjà arrêté de prendre mes comprimés de cortisone sans en parler à mon médecin ou contre l'avis de mon médecin **>Q36bis**
- ☐ Je n'ai jamais été dans une de ces situations **[Fin enquête]**

[La question 36 concerne uniquement les patients ayant souhaité diminuer le dosage de la cortisone ou utiliser la cortisone en cure plutôt qu'en continu]

36. Pourquoi avez-vous souhaité limiter l'usage de la cortisone en comprimés (corticoïdes) ?

(Plusieurs réponses possibles, items randomisés)

- ☐ Le traitement n'était pas assez efficace
- ☐ Les effets secondaires étaient trop importants
- ☐ J'avais peur des effets à long terme de mon traitement
- ☐ Les contraintes liées à la prise du traitement étaient trop importantes
- ☐ Mon asthme était bien contrôlé
- ☐ Je l'ai fait pour des raisons indépendantes de mon traitement (évènements personnels)
- ☐ Autre *[Préciser]*

[La question 36bis concerne uniquement les patients ayant souhaité arrêter la cortisone en comprimés ou changer de traitement]

36bis. Pourquoi avez-vous souhaité arrêter la prise de cortisone en comprimés (corticoïdes) ?

(Plusieurs réponses possibles, items randomisés)

- ☐ Le traitement n'était pas assez efficace
- ☐ Les effets secondaires étaient trop importants
- ☐ J'avais peur des effets à long terme de mon traitement
- ☐ Les contraintes liées à la prise du traitement étaient trop importantes
- ☐ Mon asthme était sous contrôle
- ☐ Je l'ai fait pour des raisons indépendantes de mon traitement (évènements personnels)
- ☐ Autre *[Préciser]*