

# Recommended and prescribed symptomatic treatment for acute maxillary sinusitis in Finnish primary care\*

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## SUMMARY

*We studied the use of symptomatic medication in the treatment of acute maxillary sinusitis (AMS) in primary care and whether this use is in accordance with national guidelines. The data was collected annually in the Antimicrobial Treatment Strategies (MIKSTRA) Program in 30 primary health care centres throughout Finland during one week in November in the years from 1998 to 2002. Physicians and nurses collected the data about the diagnoses, prescription-only medicines and over the counter medicines prescribed or recommended for all patients with an infection during the study weeks.*

*The MIKSTRA data comprised of 23,002 first consultations for an infection: 2,448 patients were diagnosed as having AMS. Altogether, 41% of them received some symptomatic medicine. Antihistamines with or without sympathomimetics were the most commonly prescribed or recommended symptomatic medicines (23% of the patients). For comparison, systemic antibacterial agents were prescribed for 93% of the AMS patients.*

*We conclude that Finnish physicians recommend or prescribe more symptomatic medication without proven efficacy for AMS than recommended by the national guidelines. Especially, the use of antihistamines with or without sympathomimetics, mostly the combination of acrivastine and pseudoephedrine, was common although antihistamines were recommended only for patients with allergy or nasal polyps.*

*Key words: acute maxillary sinusitis, symptomatic treatment, primary care, antihistamines, sympathomimetics*

## INTRODUCTION

Acute maxillary sinusitis (AMS) is one of the most common complications of the common cold. Radiological abnormalities in sinuses occur, however, also in most patients with upper respiratory virus infections<sup>(1)</sup>. Thus differentiating AMS from other upper respiratory tract infections (URTIs) is challenging. AMS is among the three most common diagnoses that antimicrobial agents are prescribed for<sup>(2-4)</sup>, although the evidence of their efficacy is weak<sup>(4-6)</sup>. Antimicrobial agents are prescribed for AMS 2 to 5 times more often than true disease incidence

would suggest in Finland<sup>(7)</sup>. It is obvious that neither patients nor physicians have confidence in the fact that an episode of AMS is usually self-limiting, and patients, therefore, may request a prescription for antimicrobial agents at every visit. Physicians, however, should weigh the possible benefits of antimicrobial agents against the potential for adverse effects and reserve antibiotic therapy for patients with severe and prolonged symptoms<sup>(6)</sup>.

Six infection specific national Current Care guidelines were

published in Finland in 1999 and implemented in the Antimicrobial Treatment Strategies (MIKSTRA) Program from 1999 to 2001 ([www.mikstra.fi](http://www.mikstra.fi))<sup>(3,8)</sup>. According to the Finnish practice guidelines for AMS, symptomatic medication can be used as a supportive treatment especially during the first seven to ten days of non-complicated URTIs. These recommendations are in line with most guidelines for AMS from other western countries<sup>(9-15)</sup>. An exception is the US treatment recommendation for children, which does not encourage the use of adjuvant therapies i.e. symptomatic treatment because there is insufficient evidence of their efficacy<sup>(16)</sup>.

On the population level, wide use of antibacterial agents for AMS and other URTIs leads to an increased risk of bacterial resistance and disturbance of the normal microbiota<sup>(5,17,18)</sup>. Use of symptomatic medication is, however, justifiable in some cases and it may reduce the prescribing of unnecessary antimicrobial agents. There are, however, only few studies dealing with the prevalence of symptomatic treatment in sinusitis. The aim of this study was to investigate the use of symptomatic medication for AMS in Finnish primary care.

#### MATERIALS AND METHODS

The MIKSTRA Program is a nation-wide research initiative aiming to change the management of common infections in primary care towards a more evidence-based direction<sup>(3)</sup>. A sample of 30 primary health care centres representative of the whole country and with a population base of 820 000 (16% of the population), participated in a five-year study. The data was collected in these primary health care centres during the second week of November annually from 1998 to 2002. Physicians and nurses filled out a case report form for all patients with an infection recording data about the patients' age, gender, diagnosis, duration of symptoms, investigations, sick leave, prescription-only medicines and over the counter medicines recommended or prescribed during the study weeks. Patients filled out a questionnaire about the main reason of consultation, symptoms the patient had and their duration<sup>(2,3)</sup>. Detailed information is founded on [www.mikstra.fi](http://www.mikstra.fi).

National, evidence-based Current Care guideline for sinusitis was introduced in co-operation with specialist organizations, the Current Care Program of the Finnish Medical Society Duodecim and the MIKSTRA Program in 1999. The guidelines were implemented in study health centres by means of training at the work site, facilitated by a local GP who was trained by the MIKSTRA research group<sup>(2)</sup>. The key issues in the new guideline for sinusitis, regarding symptomatic medication, were as follows<sup>(8,19)</sup>: 1) avoidance of imaging studies and antimicrobial treatment when symptoms of sinusitis have lasted less than ten days, and no sign of complication exists; 2) adjunctive therapy aims at normalizing the permeability of the osteomeatal complex by reducing mucosal oedema and promoting ciliary function. Available agents include mucolytics,

intranasal decongestants and oral sympathomimetics, but their efficacy has, however, not yet been demonstrated; 3) intranasal corticosteroids and antihistamines with or without sympathomimetics are only recommended for allergic patients and for patients with allergic rhinitis or nasal polyps; 4) sinus puncture and irrigation is indicated as first aid if symptoms are intense, the disease is prolonged or the patient is pregnant; 5) nasal lavage may reduce symptoms in adults with chronic sinusitis.

The MIKSTRA data comprised of a total of 23 002 first consultations for an infection. A total of 2 448 patients, who had a diagnosis of AMS as the only diagnosis, were included in this study (11% of all patients with first consultation). Most of the patients with AMS (86%) were over 15 years of age and 71% of them were females.

#### RESULTS

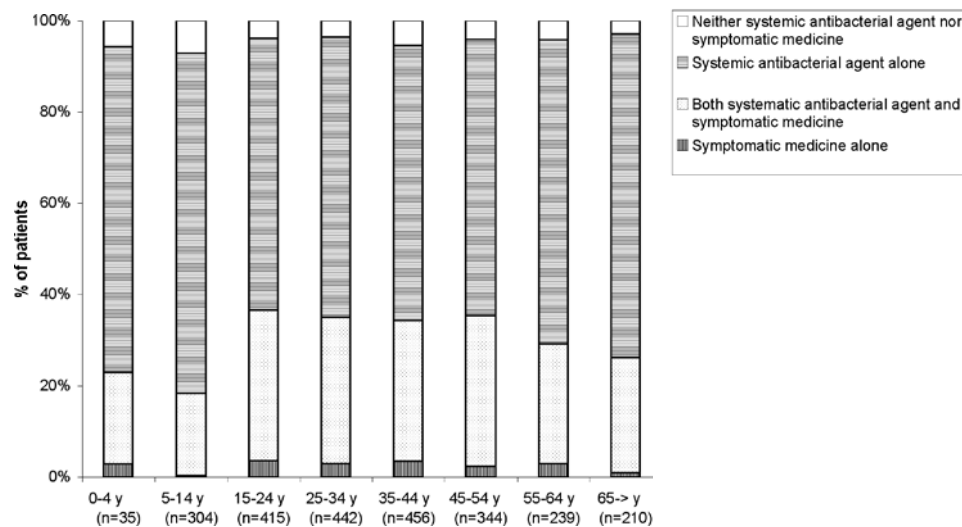
A total of 41% of all patients with AMS were recommended or prescribed some symptomatic medication, regardless of antibacterial treatment, 37% with one, 4% with two and 0.1% with three different symptomatic medicines. Adults were more prone to receive symptomatic medication than patients younger than 15 years of age (Figure 1). Gender did not, however, affect the frequency of receiving them. There was only small variation in prescription of symptomatic medicines in different study years: 42% in 1998 and 42%, 42%, 38% and 41% in 1999-2002, respectively ( $p = 0.722$ ). A systemic antibacterial agent was prescribed for 93% of the patients. The most commonly prescribed antimicrobial agents were amoxicillin (46%), doxycycline (28%), macrolides (12%) and first generation cephalosporins (5%). The detailed use of antimicrobial agents has been reported earlier<sup>(7)</sup>.

Antihistamines with or without sympathomimetics, mostly the combination of acrivastine and pseudoephedrine (Table 1), were the most commonly prescribed symptomatic medicines (23% of the patients) ranging from 8.6% among the 0-4 years old to 27% in the 15-24 years old patients. They were recommended or prescribed as often for patients without antibacterial treatment ( $n = 174$ ) as for patients with antibacterial treatment ( $n = 2274$ ) (25% vs. 22%,  $p = 0.377$ ). Antitussives with or

Table 1. The most often recommended or prescribed (> 1% of patients) symptomatic medicines for acute maxillary sinusitis patients in 30 MIKSTRA health centers ( $n=2\ 448$ ).

Medicine	% of the patients
Acrivastine+Pseudoephedrine	17.3
Xylometazoline	5.7
Codein-phosphate+Bromfeniramine+Phenylefrine +Phenylpropanolamine+Gaifenesine	2.3
Cetirizine+Pseudoephedrine	2.2
Mometasone	1.8
Fluticasone	1.5
Pentoxiverine+Terbinhydrate	1.5
Dextrometorphan+Salbutamol	1.2

Figure 1. Systemic antibacterial agents and symptomatic medications against rhinitis (antihistamines with or without sympathomimetics, intranasal corticosteroids and decongestants) (%) used for acute maxillary sinusitis patients in 30 MIKSTRA health centers (n=2 448).



without an expectorant were prescribed for 7.7%, decongestants (intranasal and oral) for 6.2%, intranasal corticosteroids for 4.5% and analgesics for 1.3% of the patients. Other symptomatic medication, including mucolytics was very seldom (<1%) recommended or prescribed.

Symptomatic medication was recommended or prescribed nearly as often for patients who had suffered from symptoms of AMS for one week or less (n = 1057) as for patients with symptoms for over one week (n = 1377) (43% vs. 40%, p = 0.096). At the same time the physicians and nurses prescribed sick leave more often for those patients with symptoms for one week or less (30% vs. 18%, p < 0.001) while antimicrobial agents were prescribed more often for those with longer duration of symptoms (90% vs. 95%, p < 0.001).

In prescription of systemic medicines and intranasal drops or sprays against rhinitis there was no statistically significant difference between the patients with (n = 1427) or without (n = 528) coryza (32% vs. 29%, p = 0.138). However, physicians prescribed drugs for cough or asthma more often for AMS patients with the symptom of cough (n = 1201) than for those without it (n = 754) (13% vs. 1.7%, p < 0.001).

Maxillary sinus puncture and irrigation was performed to 1.3% of all patients with AMS. A total of 11% of the patients who were not recommended or prescribed any medicine (n = 101) underwent this procedure, while the corresponding percentages for the patients who were recommended or prescribed symptomatic medication alone (n = 73), antibacterial agents alone (n = 1345), or both medications (n = 929) were 2.7%, 1.0% and 0.5%, respectively. Patients who had suffered from symptoms for one week or less underwent maxillary sinus

puncture about as often as patients with symptoms for over one week (1.1% vs. 1.4%, p = 0.594). No recommendations for nasal irrigation were recorded.

## DISCUSSION

Based on our results, it seems obvious that the use of both symptomatic medication and antimicrobial agents in AMS is much more common than could be justified according to the current treatment guidelines. The new national guideline did not affect very much the physicians' behaviour regarding the recommending or prescribing symptomatic medicines for AMS: 42% of the patients with the diagnosis of AMS received symptomatic medication before implementing the guideline (1998), while corresponding figures after implementation were 38% (2001) and 41% (2002).

Symptomatic medicines, especially antihistamines with sympathomimetics, are widely used for AMS in primary care although the evidence of the efficacy of antihistamines is lacking<sup>(20)</sup>. It is obvious that these combination medications were used in our study mainly because of their sympathomimetic effect, and because there are no other suitable medicines on the market in Finland containing the sympathomimetic component only.

According to our results, physicians prescribed or recommended medicines against rhinitis also to patients without coryza. Although the use of antihistamines with or without sympathomimetics are only recommended for patients with nasal polyps or allergic rhinitis<sup>(19)</sup>, the physicians probably also prescribed these medicines to patients without these findings. The reason for lower prescription rate of antihistamines with sympathomimetics for small children is probably the fact that the

effect of these combinations is not verified in small children and thus in Finland they are registered for use for adults and for children over 12 years of age only. In older children and adults most trials show a beneficial effect on general recovery as well as on nasal symptoms. It is however not clear whether these effects are clinically significant<sup>(20)</sup>. Unlike many antihistamines, systemic decongestants have minimal mucosal drying side effects and thus are less likely to impede mucus transport<sup>(10)</sup>. However, oral decongestants should be used with caution in patients with medical conditions such as hypertension, ischemic heart disease and diabetes mellitus. Furthermore, whether they speed up the resolution of rhinosinusitis is uncertain<sup>(10)</sup>. Antihistamines as monotherapy do not alleviate nasal congestion, rhinorrhoea and sneezing to a clinical extent<sup>(20)</sup>. Thus, they play no role in AMS unless the patient has allergic rhinitis as well<sup>(15)</sup>.

Most of the decongestive intranasal drops and sprays are sold over the counter in Finland. Therefore, it is possible that physicians did not register all treatment recommendations if patients had already these medicines at home. However, as all MIKSTRA physicians were advised to carefully register all treatment recommendations, we believe that our results reflect a real phenomenon, i.e. physicians did not recommend or prescribe decongestive nasal drops and sprays as a routine use for AMS patients but for patients who could really benefit from them. On the other hand, as the use of intranasal corticosteroids was small, it is probable that these medicines were only recommended for allergic patients, which is in line with the Current Care guideline for AMS as well<sup>(8)</sup>. Although there is no convincing evidence that intranasal decongestants or corticosteroids improve clinical outcomes in AMS<sup>(4,15,19-21)</sup>, they are recommended for use in the guidelines if the patients need some relief for their symptoms. As short-term use of intranasal decongestants might be the option<sup>(21)</sup> in such cases, the role of pharmacists in selling over the counter medicines and advising patients is also important in the symptomatic treatment of rhinosinusitis and AMS.

Mucolytics are not very popular in Finland in the treatment of sinusitis. Finnish physicians are rather restrictive in prescribing mucolytics. Accordingly, we found only very low-level use of mucolytics in this study.

The use of maxillary sinus puncture was exiguous in this study, although the Current Care guideline recommends the procedure both for diagnostic and therapeutic purposes in AMS<sup>(8)</sup>. In some circumstances, if AMS patients have severe pain and they are not willing to undergo a maxillary sinus puncture, the use of analgesics might be one choice to avoid initial antimicrobial treatment<sup>(22,23)</sup>. However, the use of analgesics was not recommended in the Current Care guideline for AMS and they were seldom recommended or prescribed for AMS patients.

Saline solution moisturizes the nasal cavity, reduces dryness, and helps to clear crusty mucus. Nasal irrigation with saline solution douches has become important for clearing intranasal crusts and thick mucus in patients with rhinosinusitis<sup>(10)</sup>. Saline solution intranasal sprays have also been shown to reduce the symptoms of both allergic and non-allergic rhinitis<sup>(24)</sup>. Because saline solution sprays or irrigations are inexpensive and have few to no adverse effects, it is reasonable to include them in the treatment of most patients with rhinosinusitis<sup>(10,15)</sup>.

According to our previous results, physicians prescribe antimicrobial agents unnecessarily often in AMS<sup>(7)</sup>. The use of antimicrobial agents is not recommended during the first 7 to 10 days of an URTI episode regardless of whether or not the patient has mild to moderate sinus symptoms<sup>(1,8,25)</sup>. In Finland, focusing on disease duration in guidelines has been the means to decrease the overuse of antibiotics for AMS. Primary care physicians would need more accurate diagnostic methods and criteria to differentiate AMS from acute bacterial rhinosinusitis, and this is a challenge in further research and guidelines development.

Another challenge is the medicalization around respiratory tract infections that in most cases would not require physician attention at all. It is evident that symptomatic medicines cannot replace the use of systemic antibacterial agents when they are needed, but they may help the patient to wait for the 7 to 10 days for the spontaneous resolving of his or her symptoms. However, symptomatic medicines may also have adverse effects<sup>(4,26)</sup>. Therefore, the routine use of either class of drugs in AMS should be avoided<sup>(4,6)</sup>.

In conclusion, there is obvious an over-recommendation and over-prescribing of symptomatic medication without proven efficacy in primary care setting that is not in line with the Current Care guideline of AMS in Finland. Thus, we need more education to increase knowledge to the Current Care guidelines. Physicians should avoid initial management of patients with sinus symptoms and recommend or prescribe medicines only to those patients with more severe or prolonged symptoms, who may really benefit from the medication e.g. patients with allergy or nasal polyps.

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