

Epidemiology of chronic rhinosinusitis

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Epidemiological and prevalence data for chronic sinusitis are relatively rare. In children, in particular, the precise incidence of chronic sinusitis has not been established. This paucity of information contrasts with the abundant literature on the microbiology, diagnosis, treatment, and the financial repercussions of chronic sinusitis.

Problems inherent to epidemiological studies

PROBLEM OF DEFINITION

The discrepancy of definitions results mainly from the use of different criteria such as symptom duration or intensity, the type of selected symptoms, and also from the need for and lack of other exploration methods such as imaging or bacteriological culture.

In the definition proposed by the International Conference on Sinus Disease in 1993 the criteria for chronic sinusitis in adults were persistent symptoms and signs for eight weeks or four episodes per year of recurrent acute sinusitis, each lasting at least 10 days, in association with persistent changes on the computed tomographic (CT) scan four weeks after medical treatment without intervening acute infection.¹

The International Consensus Meeting on the Management of Rhinosinusitis in Children held in Brussels in 1996 proposed that two aspects should be taken into account when defining chronic rhinosinusitis: the pathology (infection of the sinus) and the clinical symptoms (low grade symptoms and signs persisting for longer than 12 weeks).² We will not discuss nasal polyposis here.

DIFFERENTIATION BETWEEN RHINITIS AND SINUSITIS ON CLINICAL GROUNDS ALONE

The evolution from rhinitis to sinusitis occurs frequently but is difficult to determine solely on a clinical basis, especially in children. Rhinitis and sinusitis are often a continuum of disease.³ The use of nasendoscopy, imaging, and antral puncture is still being debated. If they are routinely practised in an ENT setting, their use in the definition is still not clear.

CHRONIC SINUSITIS: ONE DISEASE?

Is chronic sinusitis a homogenous disease? It seems that many factors can induce such a feature. Lack of knowledge of the natural history and the different aetiologies involved makes it difficult to give a clear description of the disease. Should we subdivide chronic sinusitis into different entities and distinguish these groups from each other? In adults blockage of the middle meatus is one of the key features but in children other factors such as facial growth or immaturity of the immune system need to be taken into account.

General data

In spite of these problems, some data are available. In the USA the prevalence of sinusitis is estimated to be 14% of the global population.⁴ In 1979 Albegger calculated the prevalence of sinusitis in a general population to range from 32% in young children to 5% in adults.⁵

In the USA chronic sinusitis accounted for 24 million patient visits in 1992 (an increase of eight million compared with 1989). The primary care physician was the first line practitioner in 85% of cases; 97% of the patients who visited their physicians with sinusitis (in 1992) received a prescription. A total of \$200 million was spent on the treatment of chronic sinusitis.⁶

It seems that the prevalence of sinusitis is increasing. Between 1990 and 1992 patients with sinusitis in the USA reported approximately 73 million days of restricted activity, an increase from the 50 million days reported between 1986 and 1988.⁵

In 1998 Beauvillain de Montreuil reported, in a multivariate analysis, that chronic bronchitis, corticosteroids, atopy, occupational rhinitis, and local decongestants were the most important factors influencing the transformation to a chronic form of sinusitis.⁷

Patients with particular diseases develop sinusitis more often—for example, 25–30% of allergic patients,⁸ 43% of asthmatic patients, 37% of patients with transplants, and 54–68% of patients with AIDS.⁹

Special consideration: paediatric population

Chronic nasal complaints in children under the age of eight years represent about 24% of the total number of outpatient visits to an average Dutch ENT practice.¹⁰ The diagnosis of chronic sinusitis in young children is, however, difficult to establish on clinical grounds alone. The use of imaging is frequently used where there is a suspicion of sinusitis in the paediatric population. In a normal population the occurrence of signs of sinusitis on an MRI scan is higher in children (45%) than in adults (39%).¹¹ In the same population, but in the presence of mucopurulent nasal secretions in the nose, signs of sinusitis can be seen on both CT and MRI scans in almost all patients.^{11 12} The prevalence of abnormalities on scanning decreases with age.

Conclusions

Even with the development of nasendoscopy and imaging, we still do not know the precise prevalence of chronic sinusitis. Problems with definitions and a lack of knowledge of the physiopathology and natural history of chronic sinusitis could explain this. However, it seems

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that almost 15% of the population suffers from chronic sinusitis, with the highest prevalence occurring in children.

- 1 Lund VJ, Kennedy DW. Quantification for staging sinusitis. The Staging and Therapy Group. *Ann Otol Rhinol Laryngol Suppl* 1995;**167**:17–21.
- 2 Clement PAR, Bluestone CD, Gordts F, *et al.* Management of rhinosinusitis in children. Consensus Meeting, Brussels, 13 September 1996. *Arch Otolaryngol Head Neck Surg* 1998;**124**:31–4.
- 3 Gwaltney JM, Philipps CD, Miller RD, *et al.* Computed tomography study of the common cold. *N Engl J Med* 1994;**330**:25–30.
- 4 Kaliner MA. Sinusitis: bench to bedside. *Otolaryngol Head Neck Surg* 1997;**100**:510.
- 5 Albegger KW. Banale Entzündender Nase un der Nasenbenhölen. In: Berendes J, Link JR, Zöllner F, eds. *Hals, Nasen-, OhrenHeilkunde in Praxis und Klinik. Band I. Obere und untere Luftwege.* Stuttgart: G Thieme Verlag, 1979: 11.1–11.32.
- 6 Kennedy DW. *Sinus diseases: guide to first-line management.* Deerfield Beach, Florida; Health Communications, 1994: 12.
- 7 Beauvillain de Montreuil C, Aubert P, Perahia M, *et al.* Facteurs de risque de sinusite chronique. *J Franç ORL* 1998;**47**:261–4.
- 8 Savolainen S. Allergy in patients with acute maxillary sinusitis. *Allergy* 1989;**44**:116–22.
- 9 Porter JP, Patel AA, Dewey CM, *et al.* Prevalence of sino-nasal symptoms in patients with HIV infection. *Am J Rhinol* 1999;**13**:203–8.
- 10 De Groot RRM, Van Zanten ME. *Otorhinolaryngology in outline 1984–1993.* Utrecht: SIG Health Care Information, 1993: 1–24.
- 11 Gordts F, Clement PAR, Destryker A, *et al.* Prevalence of sinusitis signs on MRI in a non-ENT pediatric population. *Rhinology* 1997;**35**:154–7.
- 12 Van Cauwenberge P. Prevalence and etiology in pediatric sinusitis (abstract). *XV Congress of European Rhinological Society and XIII International Symposium on Infection and Allergy of the Nose.* 1994: 254.