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Acute rhinosinusitis – does quality of life explain continued rates of antibiotic overusage?

See linked article by Stjärne *et al.* on pg 174

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Quality of life (QoL) measurement is central to quantifying the burden of illness over a range of disease states. Particularly for diseases that infrequently result in mortality or hospitalisation, QoL indices can highlight the important impact of a condition.¹ One such illness is acute rhinosinusitis, one of the most common reasons for which patients seek out medical attention. Approximately 6-15% of the population is affected by acute rhinosinusitis and it is estimated that 2-5 episodes of common viral colds occur per year in adults.² In school-aged children the numbers are even higher, with 7-10 occurrences per year. The resultant healthcare utilisation worldwide is great, comprising 3-10% of all physician visits.^{3,4} As a result, there is a pressing research need to study acute rhinosinusitis and its impact on QoL and economic cost, its co-morbid risk factors, and the prevention of harm from the overuse of antibiotics.⁵

Primary care providers have the major responsibility for managing this condition, and thus it is appropriate to study acute rhinosinusitis in a primary care setting. In this issue of the *Primary Care Respiratory Journal*, Stjärne and colleagues⁶ report on the high costs and health-related QoL in acute rhinosinusitis in a Swedish primary care setting. Using a prospective, observational study design at 11 sites, QoL and cost analyses in adults with acute rhinosinusitis were assessed. Subjects were evaluated by the rhinosinusitis-specific Major Symptoms Score and overall QoL measure EQ-5D™ at days 0 and 15. Those with clinically suspected fulminant bacterial rhinosinusitis (e.g. fever, worsening of symptoms after initial improvement or “double sickening,” persistent unilateral facial or tooth pain) were excluded. A high rate of subjects reported symptoms detrimental to QoL. At the initial visit, 88% of participants reported pain/discomfort and 43% had problems with usual

activities, although only 11% reported extreme pain. The vast majority of subjects – 91% – improved their symptom scores by at least 30% between days 0 to 15.

In addition to patients' decreased QoL, the paper by Stjärne and colleagues informs us of the high economic cost to society of acute rhinosinusitis, mainly related to indirect costs. Interestingly, they found a wide variation in cost, from 1,728 to 54,357 SEK (194 to 6,111 €) with a mean cost of 10,260 SEK (1,102 €). Of this, 7,781 SEK was due to indirect costs from a fall in productivity related to employment status and work absence.

The authors are to be commended for conducting a high-quality, multicentre study of acute rhinosinusitis in a primary care setting. They have added to the limited evidence base on acute rhinosinusitis and its effects on disease-specific symptom scores and QoL. Further, direct and indirect costs of this disease have not been well-studied before, and have never been evaluated in Scandinavia.

Allergy is a risk factor for acute rhinosinusitis⁷ and a quarter of the subjects in this paper⁶ report having seasonal allergies. This highlights the importance of assessing for the role of allergies. There are multiple pathophysiological explanations for the connection between allergy and rhinosinusitis.² This includes impaired ciliary function in allergic rhinitis⁸ and elevated expression of ICAM-1, the receptor for rhinovirus.⁹ Also, numbers of plasmacytoid dendritic cells, important for combating viral infection, are decreased in asymptomatic patients with chronic nasal allergic inflammation.¹⁰

Another major concern is the global overuse of antibiotics for the treatment of acute rhinosinusitis, a mainly viral disease.¹¹ This was largely borne out in this study by Stjärne and colleagues,⁶ since 60% were treated by their provider with antibiotics. Usually, the number of patients taking a medicine is less than those that were prescribed it. Ironically, although 60% were initially recommended by their doctor to take antibiotics, 69% actually reported using antibiotics. Not enough information is available to explain why antibiotics were recommended or used, although the high numbers suggest that overuse occurred. Potentially, subjects not initially prescribed antibiotics might have returned to the same or different medical provider to obtain them.

It is estimated that only 0.5-2% of viral colds result in bacterial rhinosinusitis, so it is disappointing that such high rates of antibiotics continue to be prescribed.¹² Clinical practice guidelines recommend antibacterial treatment for persistent symptoms lasting more than 10 days or for patients with severe symptoms, in order to speed

resolution and prevent serious sequelae.^{13,14} The EPOS 2012 guidelines have stricter recommendations and stratify treatment based on case categorisation;

- 1) common cold/acute viral rhinosinusitis
- 2) acute post-viral rhinosinusitis (moderate symptoms – recommend intranasal steroids but no antibiotics), and
- 3) acute bacterial rhinosinusitis (severe symptoms – antibiotics and intranasal steroids recommended).²

For antibiotic rates to decrease, we need to continue to educate medical providers. In addition, there must be changes in societal expectations, since patient demand is a strong barrier to limiting prescription rates. Subjects in this study by Stjärne and colleagues reported poor QoL.⁶ They noted high rates of pain/discomfort and limitation to usual activities, so understandably they desired symptom relief. But antibiotics are not always beneficial and can cause harm. Physicians should be aided by national programmes to educate both healthcare providers and the general population.¹⁵

This is a timely message. The American Academy of Allergy, Asthma, and Immunology has recently updated its teaching slides on both acute and chronic rhinosinusitis. This was an international effort involving experts from around the world from the fields of allergy and immunology, otolaryngology, and radiology. These new teaching slides provide a review of the epidemiology, diagnosis and management of rhinosinusitis, and can be accessed without charge at: <http://education.aaaai.org/courses>. Additional teaching slides are available on a wide variety of respiratory conditions, providing Continuing Medical Education (CME) credits for trainees, primary care physicians and specialists.

Conflicts of interest The author declares speaker's honoraria for Teva and Sunovion.

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Obesity, airflow limitation, and respiratory symptoms: does it take three to tango?

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Respiratory symptoms such as dyspnoea and chronic cough are common in the general population¹ and are associated with reduced health status even in people without any disease of the airways.² The presence of objective lung function impairment or bronchial hyperresponsiveness does not alter this association,² indicating that other factors contribute to dyspnoea and chronic cough in the general population. Unravelling these factors remains a relevant challenge and a prerequisite to prevention and treatment of respiratory symptoms. One of the factors which probably contributes to the presence of respiratory symptoms is obesity, defined as a body mass index (BMI) of ≥ 30 kg/m².

The increasing prevalence of obesity is one of the major global