Antibiotic usage in chronic rhinosinusitis: analysis of national primary care electronic records.

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This study is part of the MACRO programme of research into the most effective treatment for chronic rhinosinusitis (CRS) which is funded by the National Institute of Health Research. It looked at national primary care electronic records covering the period from April 1997 until February 2016. Its aim was to analyze the rates of antibiotic prescriptions for patients with CRS aged 16 and over in primary care in England and Wales. In addition to patients with a "definite" CRS diagnosis those with diagnoses of "likely" and "very likely" CRS were included after two visits had been recorded at least 12 weeks apart, as by definition CRS is the presence of symptoms for more than 3 months. Furthermore, patients were divided into two groups: if they were known to have nasal polyps or not.

The study included 88,317 patients, of which 71% had a definite, 6.7% had a very likely and 22.4% had a likely diagnosis of CRS, and 38.2% were known to have nasal polyps. From these patients, 46% were given an antibiotic prescription at their first CRS diagnosis. This proportion varied considerably with the certainty of CRS diagnosis. In the group of patients with a "definite" diagnosis of CRS, only 29.1% were prescribed antibiotics compared to 77.2% and 89.6% for patients with a "very likely" and a "likely" diagnosis respectively. Of these patients receiving an antibiotic at first diagnosis, over 80% in each CRS group received a subsequent antibiotic prescription with an average time of 5 months between courses. However, this was following a further consultation for only 56.3%. About 9 % of patients had five or more courses of antibiotics over 5 years. The most prescribed antibiotic was penicillin, at approximately 80%, with the rest being mainly macrolides and tetracyclines. Typically the course lasted one week but a longer duration was often prescribed for macrolides; 1316 patients received courses of macrolide lasting 8 or more weeks.

Interestingly, there was an obvious change in the antibiotics that were prescribed over the 20 years. Penicillin remained the most prescribed antibiotic overall at about 50%. However, for patients with a "definite" CRS diagnosis macrolide prescriptions went from 9% in 1998 up to 17% in 2015 and tetracycline prescriptions increased from 24% in 1998 to 43% in 2015, slightly ahead of penicillin. In patients with a known presence of polyps, however, there was an increasing trend of prescribing macrolides and a declining trend for tetracyclines.

In conclusion, the study found that if there is uncertainty in the diagnosis of CRS it results in a high percentage of antibiotic prescription, although this may represent a response to acute infections in some cases. While the majority of patients with a definite diagnosis of CRS did not receive antibiotics, there is a high level of repeat antibiotic prescribing even for this group, contrary to a recent ENT-UK commissioning guideline. This does not recommend routine antibiotic use for CRS in primary care due to a current lack of high quality evidence of effectiveness. The usage and effect of antibiotics for CRS in primary care therefore needs to be looked at further, to avoid both unnecessary prescriptions and an increase in antibiotic resistance.