

# Phenotyping, endotyping and clinical decision-making

We have exciting times in the treatment of chronic rhinosinusitis (CRS). The last year has brought us a number of new ideas and publications to help in decision-making in daily practice. In the first issue of this year, Claire Hopkins and co-authors identified the most important outcomes for patients, public and practitioners that should be evaluated in studies on health interventions for CRS<sup>(1)</sup>. In this issue of the journal, a group of experts tried to define appropriateness criteria for endoscopic sinus surgery during management of uncomplicated adult chronic rhinosinusitis. Appropriate indications for endoscopic sinus surgery (ESS) are currently poorly defined and the lack of clear surgical indications for ESS likely contributes to the large geographic variation in surgical rates. Using the Delphi method a total of 624 clinical scenarios (half CRSsNP and half CRSwNP) were ranked. The study clearly states that this group of experts indicates that ESS can only be indicated after medical treatment has failed with patients still having significant symptoms (SNOT-22  $\geq$  20) and at least some abnormalities at CT scan<sup>(2)</sup>. Although it certainly does not mean that all patients fulfilling these minimal criteria should be operated, I hope that it prevents patients to be operated that do not fulfill these criteria. Although we know quite well which patients within reason will not benefit from surgery, it is much more difficult to advise patients when surgery will help them. The studies published last year by Hopkins et al. showing that patients with CRS do better when operated early in their disease and that early surgery might prevent the development of asthma even further complicated the decision<sup>(3,4)</sup>. Now not only the present symptoms but potentially also future effects have to be taken into account. These data coming from the National Comparative Audit of Surgery for Nasal Polyposis and Chronic Rhinosinusitis need to be substantiated in prospective trials with standardized questionnaires but for the moment they let you wonder whether it is better to operate earlier. Even more than for first surgery we wonder when to perform revision surgery. In this issue of the Journal, Rudmik et

al. show that failing to achieve an improvement of greater than one minimal clinically important difference (MCID, 9 points in the SNOT\_22) at 3 months after primary ESS and a deterioration of greater than one MCID) from the 3- to 12-month follow-up period was associated with an increased risk of revision ESS<sup>(5)</sup>. Of course rather than doing revision surgery we would like to have other, better treatment options for our patients. We know that postoperative corticosteroids can improve recurrence rates in cases of CRSwNP<sup>(6)</sup> but now new options of precision medicine<sup>(7,8)</sup> with endotyping patients<sup>(9)</sup> and precise treatments with monoclonal antibodies come into reach<sup>(10-12)</sup>. In the coming years we expect to be able to treat seriously ill CRSwNP patients that now need repetitive surgery and often also have severe asthma with these new monoclonal antibodies. At this moment the price of these new options is a major issue but we may hope and expect that finding the appropriate group of patients that benefit mostly from the treatment via precision medication will make the treatment available for all patients that need it. A totally new area of prediction of treatment effects lay ahead of us with new opportunities for our patients.

Loss of smell is an important and difficult to treat complaint of patients with CRS especially in patients with CRSwNP<sup>(1,13,14)</sup> and it is important to realize that olfactory cleft opacification at the CT scan can predict improvement after ESS in CRSwNP<sup>(15)</sup>. Olfaction is probably the most underestimated sense and olfactory loss is prevalent, and may induce significant mood disorders<sup>(16)</sup>. Fortunately smell disorders can be (partially) trained with smell training<sup>(17-19)</sup> and maybe also other possibilities arise like application of intranasal insulin in patients with postinfectious olfactory loss<sup>(20)</sup>. In this issue of the journal, Konstantinidis et al. for the first time show that one year olfactory training seems to be associated with better results in patients with post-infectious olfactory loss than a 16 week scheme<sup>(21)</sup>. An important finding for our daily practice.

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