Otorhinolaryngologic therapy

Sinusitis therapy

Code: 211 Updated: 23 June 2017

Background

Chronic sinusitis affects up to 100% of CF patients and symptoms as daily headache, chronic cough and purulent rhinorrea are common (Kang SH, 2015), (Le C, 2016). Correlation between sinus condition and low respiratory tract diseases other than CF, such as asthma and chronic obstructive pulmonary disease, has often been demonstrated and there is evidence that treating upper airways leads to improved conditions of lower airways. In CF, sinusitis has been considered a risk factor for pulmonary decline also because the sinusal area may be a reservoir for lung infection (Johansen HK, 2012) and a focus for initial lung colonization (Aanæs K, 2014). Quantitative sinonasal symptom assessment in the pediatric population (Wentzel JL, 2015) and in the adult one (Habib AR, 2015) has been studied. Chronic sinusitis diagnosis is based on nasal endoscopy and parasanal sinus computerised tomography (Casserly P, 2015) and, recently (Sheikh SI, 2016), a novel computed tomography scoring system for sinus disease in adults has been validated.

Conservative therapy, including sinus irrigations, mucolytics, and systemic and topical corticosteroids, is usually prescribed. Antibiotics, mainly topical, are considered the most effective treatment to reduce symptoms and to improve endoscopic findings in both acute and chronic sinusitis, even if it has to be considered that there is low to moderate correlation between pulmonary and sinus pathogens (Sobin L, 2017). When medical management fails, patients must be referred for endoscopic sinus surgery, that has proved (Macdonald KL, 2012), (Tumin D, 2017) to be safe and to relieve symptoms, even if it does not improve significantly lung function. It has been hypothesized (Aanæs K,2013) that extensive sinus surgery combined with intensive follow-up can eradicate pathogenic bacteria from CF sinuses. Sinus surgery and daily nasal douching in post-lung transplant patients has also shown (Vital D, 2012) to reduce P.aeruginosa chronic lung infection, to have a positive impact on post-transplant survival and to reduce the incidence of Bronchiolitis Obstructive Syndrome. In a systematic review (Liang J, 2014) about medical management of chronic rhinosinusitis in CF, data from 12 studies on 701 adult and pediatric CF patients showed that dornase alfa and, to a lesser extent, topical steroids have demonstrated significant benefits, whereas there was a lack of evidence to support antibiotic therapy. Finally (Chang EH, 2015), it has been speculated that Ivacaftor treatment may reverse CT findings of CF sinus disease, increase nasal pH, and resolve sinus symptoms after 10 months of therapy.

Issues

Conservative topical therapy associated with the best efficacy and safety results.

Antibiotic protocols (dosage, duration and administration modalities) associated with the best efficacy and safety results.

Indications, outcomes and management of endoscopic sinus surgery.

What is known

A systematic DARE review, updated December 2012, evaluating subjective and objective outcomes of endoscopic sinus surgery (ESS), is available. Nineteen studies involving 586 patients were included. Considered outcomes have been safety, subjective symptoms, objective endoscopy scores, days spent in hospital, courses of antibiotics and pulmonary function tests. ESS showed to be safe, associated with improved symptoms, even if no marked improvement in pulmonary function tests was demonstrated.

Another DARE review published in 2013 regarding peri-operative strategies (postoperative medical therapies, intraoperative techniques and image guidance, intranasal corticosteroid injection, dornase alfa, gene therapy) has affirmed that evidence for definitive peri-operative management in Cystic Fibrosis is lacking.

In a third DARE review, published in the same year, EES proved to be effective in improving sino-nasal symptoms and endoscopic findings, even if its clinical impact on lower airway disease remains unclear.

Three RCTs are available about dornase-alpha treatment. One RCT, published in December 2005, compared dornase alpha therapy with hypotonic saline solution in 24 patients who had underwent sino-nasal surgery. Topical drugs were administered 1 month after surgery for a 12-month period. Dornase-alpha treatment significantly improved all outcome measures better than the hypotonic solution and improvement increased over 48 weeks after surgery. Another RCT, published in 2011, studied the efficacy and safety of dornase-alpha compared with hypertonic solution delivered for 28 days by the nebuliser PARI-SINUS. Results showed that dornase-alpha was more effective in improving quality of life. The third RCT, published in 2014 about sino-nasal inhalation of dornase alfa administered by vibrating aerosol, showed that this therapeutic strategy is able to reduce sinusitis symptoms in CF.

Finally, a good efficacy and tolerability of a new nasal spray formulation containing hyaluronate and tobramycin in patients with bacterial sinusitis has been suggested in a RCT published in 2014.

Unresolved questions
Safety and efficacy of different protocols and antibiotic regimens in conservative therapy. Indication, role, and timing of sinus surgery considering endoscopy scales, sinus microbiology evolution, symptoms and prognosis of the underlying disease and validated quality of life measurements.

No RCT is ongoing on this topic

**Keywords**

Bacterial Infections; Sinusitis;