Acute Sinusitis – Treatment and Management with Mucolytic Agents

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Upper respiratory tract virus infection (URI)

- Inflammation of the nasal mucosa
- Duration of disease < 14 Tage
- Symptoms:
  - blocked nose, nasal congestion
  - clear or purulent nasal discharge
  - post nasal drip

...may lead to an Acute Sinusitis
Acute Sinusitis

• Nasal discharge and sinus congestion depends on the infection
• 5 – 7 day’s after URI, most viral, bacterial (0,5 - 2 %): Streptococcus pneumoniae und Haemophilus influenzae
Pathogenesis

The paranasal sinuses are joined to the nasal cavity via small ostia.

Ostia become blocked easily by allergic disease, inflammation, or by swelling in the nasal lining that occurs with a cold. If this happens, normal drainage of mucus within the sinuses is disrupted, and sinusitis may occur.
Paranasal sinuses are lined with respiratory epithelium
Diagnosis of acute Sinusitis

• Diagnosis is usually based on history and examination findings
• Only few clinical findings suggest a clear diagnosis (eg endoscopically proven Pus)
• Technical methods (CT, smear, etc.) are only conclusive
Diagnosis

• If no pain in the facial area and no complaints in the area of the nose ("blocked nose" rhinitis, hyposmia, ) are present, the diagnosis is very unlikely ("Evidenz" level IIc).

• One-sided pressure / or percussion tenderness over the sinuses and purulent rhinitis in the examination confirm the suspicion ("Evidenz" level IIc).
Diagnosis

- Some findings are almost conclusive: visible pus in the middle meatus at endoscopy, "purulent postnasal drip" and a premaxillary swelling ("Evidenz" level IIb).

Guideline Rhinosinusitis DGHNO
How to avoid the development of acute sinusitis and how do I treat?

Secretolysis?
Antibiotics?
Decongestant nasal therapy?
Xylometazolin Spray

• Frequently prescribed in Germany

• Imidazole derivatives, alpha- sympathomimetic effect

• Contraction of vascular smooth muscles - narrowing of the vessels – decongestant effect

• Many publications on the improvement of nasal breathing during banal infection (PubMed 185 Publ. word search „xylometazoline nasal“)
The therapeutic effect of nasal decongestants is scarcely been studied for acute rhinosinusitis, placebo-controlled studies are not available.

Guideline German Society of Oto-Rhino-Laryngology, Head and Neck Surgery
Rhinosinusitis
Antibiotic Therapy

Indications for antibiotic therapy in acute rhinosinusitis:

- severe symptoms
- Fever > 38.5 °C
- a gain of complaints over the disease
- a threatening complication
- Patients with chronic inflammatory lung disease immunodeficient or immunosuppressed patients
- Patients with serious underlying diseases or specific risk factors
Acute Sinusitis - Complications

- Periostitis, orbital cellulitis
- Meningitis, Encephalitis, epidural or subdural Empyema and intracranial Abscess
- Thrombosis of the sagittal sinus and cavernous sinus
Antibiotics

First choice

Amoxicillin

- Aminopenicillin + beta-Lactamase-Inhibitor, Oralcephalosporin 2
- Makrolid, Ketolid
- Cotrimoxazol
- Clindamycin, Doxycyclin
- Cephalosporin 3a, Moxifloxacin, Levofloxacin Ciprofloxacin

Guideline Rhinosinusitis DGHNO
Antibiotics

Few placebo-controlled trials

Several meta-analyses that compare different antibiotics against each other
Antibiotics

[Intervention Review]

**Antibiotics for clinically diagnosed acute rhinosinusitis in adults**

Marieke B Lemiengre¹, Mieke L van Driel¹,²,³, Dan Merenstein⁴, James Young⁵, An IM De Sutter¹,⁶

Analysis of 10 studies with 2450 patients

Shortening time of the disease (not significant)
Antibiotic therapy is not indicated (resistance and side effects, serious complications of ARS rarely)
Antibiotics

- Investigation of meta analysis of randomized placebo controlled trials of the last 10 years
- Only studies antibiotic therapy vs Placebo
- Little difference in the treatment time
- Significantly more side effects in the antibiotic group

Upper respiratory infections (URIs) involving the oropharyngeal mucosa usually resolve in a week or less, and are self-limiting. Antimicrobial therapy is not indicated for URI patients with URI symptoms, including sore throat, cough, and sinusitis, and viral URI is estimated to account for 70% of cases of acute...
Antibiotic therapy should be limited to serious disease states

Complications can not be reduced by antibiotic therapy
Therapy of Complications
Secretolysis

• 331 patients with acute sinusitis
• Myrtol - Placebo - Essential oil
• Survey of symptom scores (SSC)
• Significant improvement of the SSC Myrtol over placebo with good tolerability
• A significant treatment effect is based on the symptom scores

Wirkung von Myrtol standardisiert* bei der Therapie der akuten Sinusitis – Ergebnisse einer doppelblinden, randomisierten Multicenterstudie gegen Plazebo

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Laryngo-Rhino-Otol. 76 (1997) 23 – 27
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- Sequenzszintigrafic study of four subjects for the detection of mucocilliare clearance equivalent before and after administration of Myrtol
- Unique increasing transportation rate after administration of Myrtol

Laryngo-Rhino-Otol. 74 (1995) 733 – 737
Systematic study of the various factors influencing the MCC

Used cell cultures were obtained from sinus cells from human donors

In vitro studies of air-liquid interface (ALI) cultures
Influence on the transport speed of the mucus (mucociliary clearance)

Dose-dependent increase in the MCC by GeloMyrtol® forte
CBF increase 30 min after exposure (ciliary beat frequency)

Dose-dependent increase in CBF by GeloMyrtol® forte after application.
Conclusions

• To treat a viral illness with antibiotics usually does not make sense

• Antibiotic therapy means little effect at relatively frequent adverse events

• Antibiotic therapy produces bacterial resistance

• Acute sinusitis in otherwise healthy patients is not an indication for antibiotic therapy, even with fever.
Conclusions

• There are many references to the good effectiveness of Myrtol for acute sinusitis

• Treatment with Myrtol means effect at relatively rare adverse events

• Proven secretolysis, higher transport speed of the mucus plus anti-inflammatory and antibacterial effect

• Meaningful and effective alternative to antibiotics without the typical side effects and resistance risks.