

The diagnosis of aspirin (ASA)-sensitive asthma/rhinosinusitis

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Aspirin-sensitive asthma/rhinosinusitis occurs in about 10% of all patients with asthma. In most cases the diagnosis of ASA sensitivity is based on the history of adverse reactions elicited by aspirin and other nonsteroidal antiinflammatory drugs (NSAIDs). However, the data from anamnesis are not always sufficiently reliable. There is no *in vitro* test for the identification of aspirin intolerance.

ORAL ASPIRIN CHALLENGE

Oral aspirin challenge remains a gold standard for the diagnosis of aspirin sensitivity. The challenge should be performed by administration of increasing doses of aspirin at 24 hrs intervals. The test begins with 10-20 mg acetylsalicylic acid and the dose is doubled every day. The low initial dose of ASA is justified by observations that 20 mg of ASA are enough to elicit an attack of dyspnoea in about 40% of patients with ASA intolerance [3]. Aspirin-induced bronchoconstriction usually occurs after 60 min after aspirin, reaching its maximum at 120 min. The dyspnoea is often accompanied by extrabronchial symptoms such as watery rhinorrhea, lacrimation, facial flushing and vomiting. The forced expiratory volume in one second (FEV₁) is recorded every 30 min during 3-4 hrs after the ingestion of aspirin. The

test is considered as positive if at least a 20% fall in FEV₁ is obtained. In order to shorten the diagnostic provocation procedure Pleskow et al. administered consecutive aspirin doses at 1-3 hrs intervals until eliciting dyspnoea with a significant fall in FEV₁ (25%). As the study progressed 3 hrs intervals between aspirin doses were used exclusively. Sequential dosages of aspirin should be individualized for each patient [8].

Oral provocation with aspirin is not an easy procedure. It is not risk-free and is time consuming. It should be performed by experienced persons, close to an intensive care unit.

BRONCHIAL ASPIRIN CHALLENGE

Bronchial provocation with a soluble form of aspirin [lysine-acetylsalicylic acid (L-ASA)] has the advantage that it is safe and confined to the respiratory tract [1, 6, 7, 9]. On each study day the increasing doubled concentrations of lysine-aspirin, ranging from 11,25 to 360 mg/ml are administered as aerosol in inhalation [7]. The peak clinical responses occur 30-60 min after inhalation. In the study of Dahlen et al. [2], 10 of 22 ASA-sensitive patients reacted with bronchoconstriction. The inhalation challenge, similarly

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as the oral one, is unsuitable for patients whose asthma is not in clinical remission and whose FEV₁ is lower than 70% of predicted value.

NASAL ASPIRIN CHALLENGE

Nasal aspirin challenge was introduced by Ortolani [5]. Nasal challenge with lysine-aspirin followed by the assessment of nasal response by means of the anterior rhinomanometry is a simple provocation test. The nasal response takes 10-20 min to reach its maximum and includes congestion, rhinorrhea and sneezing. Schapowal applied 20 µl of L-ASA concentrations, beginning with 2,5 mg up to 25 mg/ml, unilaterally to the inferior nasal concha [9]. Milewski et al. applied 80 µl of lysine-aspirin (180 mg/ml), instilled locally to the inferior nasal concha in both nostrils [4]. The total deposited dose of L-ASA was equivalent to 16 mg of acetylsalicylic acid. Rhinomanometry was then performed bilaterally every 10 min for the next 2 hrs. The fall in respiratory nasal flow > 40% in at least one nostril was considered as significant. No systemic reactions including bronchospasm were observed. Nasal provocation with lysine-aspirin is highly specific (95,7%) and sensitive (86,7%). The sensitivity of this test reported by Patriarca is much lower (37%) [6]. This difference may be due to the dose and the method of aspirin administration or the criteria for the evaluation of

the test result as positive [4]. The limitation of this method is that it cannot be applied in 20% of patients with the total obstruction of at least one nostril or marked fluctuations in nasal flow [4].

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