

Short communication

Prevalence of asthma with aspirin hypersensitivity in the adult population of Poland

Background: Acetylsalicylic acid (ASA) and other nonsteroid anti-inflammatory drugs (NSAIDs) are reported to account for 21–25% of all adverse drug reactions. Some asthmatics may react to ASA and other NSAIDs with acute bronchoconstriction, profuse rhinorrhea and skin flushing. This is a distinct clinical syndrome called aspirin-induced asthma (AIA). The prevalence of AIA among asthmatic patients in Poland has not been previously assessed.

Methods: A questionnaire survey of 12 970 adults of both sexes, randomly selected from the population of Poland.

Results: The prevalence of AIA in the general population of Poland was estimated as 0.6%. Thirty patients (4.3%; 95% CI: 2.8–5.8) of 703 asthmatics (5.4% of general population) reported symptoms attesting to hypersensitivity to aspirin. In 27% of them the reactions were precipitated by aspirin, whereas in the remaining subjects by other NSAIDs.

Conclusions: The prevalence of AIA in Poland is 4.3%, being somewhat lower than in Finland and Australia, where it was recently reported to account for 8.8 and 10.9% of the adult asthmatics, respectively. These figures indicate that aspirin hypersensitivity might be a significant community problem.

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Acetylsalicylic acid (ASA) and other nonsteroid anti-inflammatory drugs (NSAIDs) are among those most commonly used the world over. The NSAIDs were reported to account for 21–25% of all drug reactions (1). Some asthmatics may experience reactions to ASA and other NSAIDs involving acute bronchoconstriction, profuse rhinorrhea and skin flushing (2). This distinct clinical syndrome known as Aspirin-Induced Asthma (AIA) has been very well documented and has been also of particular interest because of life-threatening asthmatic attacks provoked by aspirin (2–4). The AIA is often under-diagnosed. The prevalence of aspirin hypersensitivity in adult asthmatic patients was reported to vary from 3 to 19%, depending on clinical history alone, or challenge with ASA (5). There have been no epidemiological studies on the prevalence of this syndrome in Poland.

Subjects and methods

Throughout 1998–2000 the multi-centre study (6) of the prevalence of allergic diseases in Poland was carried out in 11 clinical centres, covering the entire country. Each clinical centre covered the area of a single province and comprised three regions exposed to

various extents of environmental pollution. Study population included individuals of both sexes, aged 3–80 years. The sample size was estimated at the level of 16 500–19 800 randomly selected individuals. The original questionnaires were based on the International Study of Asthma and Allergies in Childhood (ISAAC) and the European Community Respiratory Health Survey (ECRHS) questionnaires. Medicine students and nurses interviewed the subjects face-to-face, so as to ensure the highest possible credibility of replies. In the questionnaires for adults, apart from the emphasis on diagnostic accuracy, five specific questions relating to hypersensitivity to aspirin and NSAIDs were incorporated. In case of positive answer to question of intolerance to NSAIDs the individual was asked to select the incriminated drug of the list of 15 common pharmaceuticals. He was then asked specifically about the symptoms precipitated, such as dyspnoea, wheezing, nasal blockage, skin eruption, loss of consciousness. Further questions determined time of the reaction and its possible recurrence on the second exposition to the drug. The subjects with asthma and respiratory symptoms following aspirin or/and NSAIDs ingestion were classified as AIA subjects. All questionnaires were subsequently scanned for any logical discrepancies. All subjects whose diagnoses were assessed as dubious were then subjected to additional examinations and tests (spirometric measurements and prick tests) with a view to establishing a conclusive diagnosis. Of 16 238 cases 12 970 adults, aged 17–80 years, were included in the statistical calculations of NSAIDs hypersensitivity. The response rate to the questionnaire was 82%.

Statistical analysis

Prevalence rates of allergic diseases under investigation, as well as 95% confidence intervals were calculated. The comparisons of some indices and other variables in the selected sub-groups were carried out by Chi-square test, or Student's *t*-test for independent variables.

Results

The prevalence of AIA in the general population of Poland was estimated as 0.6%. Seven hundred and three patients with bronchial asthma (5.4%) were detected within the total of 12 970 questionnaires under scrutiny, comprising 410 (58.3%) females and 293 (41.7%) males. Thirty patients (4.3%; 95% CI: 2.8–5.8) had symptoms indicating hypersensitivity to aspirin, i.e. seven males (23.33%) and 23 females (76.67%). After ingesting ASA (26.7%) or other NSAIDs (73.3%), they experienced respiratory reactions consisting of dyspnoea and wheezing. Ten (33.3%) of them reported eye and nasal symptoms (rhinorrhea, nasal blockage, impairment of the sense of smell, conjunctival infection). Fifteen (50%) of them also had skin reactions.

The average age was 44.7 (mean 47.0, min 20, max 69, SD 14.25). Eighteen (60%) patients suffered from bronchial asthma, as corroborated by medical records. Twelve (40%) patients were ultimately diagnosed with asthma on the basis of verified questionnaire information. Asthmatics experienced their first shortness of breath attack statistically at the age of 31.56 ($13.68 \pm \text{SD}$, mean 32.5, min 4, max 51). Seventeen asthmatics reported the symptoms to occur more frequently than once a week, whereas in 13 patients the symptoms seriously disrupted their everyday routines. Twenty-two (73%) of them received chronic anti-asthmatics drugs, including corticosteroids nine (30%), inhaled β_2 agonists 21 (70%) and systemic steroids nine (30%). Eighteen (60%) had been on theophylline for 12 months prior to completing the questionnaire. Eighteen (66.7%) patients with AIA suffered from rhinitis and chronic sinusitis.

In the group diagnosed with pollinosis (8.5%) intolerance to NSAIDs was estimated at 2.6% (95% CI: 1.7–3.5).

Discussion

A fairly limited number of epidemiological studies offered estimates on the prevalence of AIA. Recently, the results of the Finnish and Australian studies, based on randomized selected population, using detailed questionnaires became available (8, 9). Both Finnish and Australian postal questionnaire surveys attested to higher prevalence of the 'doctor-diagnosed AIA' than in the Polish face-

to-face interviews (8.8 and 10.9–4.3% of the adult asthmatics, respectively).

However, total prevalence of the 'doctor-diagnosed asthma' among adults proved closely similar in both Finnish and our own study (4.4 and 5.4%), as opposed to the Australian study (9.9%). The largest random selected population was in the Polish survey (i.e. 12 971 in Polish sample, 4300 in Finnish and 1298 in the Australian). The higher prevalence of AIA in Australia still remains very much an open issue.

It would appear that AIA is still under-diagnosed. This might possibly be the result of the fact that patients experiencing undesirable reactions after aspirin ingestion tend to avoid taking drugs of the same kind next time round? In the present study 19 (63.3%) patients refused to take the drug again, whereas 10 (33.3%) experienced similar symptoms after its ingestion. Only one patient experienced no reaction whatsoever.

Once initiated, the inflammatory process in bronchi persists and requires chronic steroid therapy, with symptoms making pursuit of everyday activities rather difficult. It was reported that among the patients suffering from severe asthma, who required mechanical ventilation, the frequency of aspirin intolerance increased to 24% (10). Furthermore, in a recent European survey 15% of patients were entirely unaware of suffering from aspirin intolerance, and only provocation tests ultimately revealed their hypersensitivity (5, 7). The fact that aspirin hypersensitivity frequently remains under-diagnosed might well be due to the lack of routine oral/inhaled provocation tests in everyday clinical practice (5, 7).

As evidenced by our own research data, as well as by the ones contributed by the European and Australian surveys, AIA may well pose a serious community problem in need of being comprehensively addressed rather sooner than later.

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