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ORIGINAL PAPERS

STATISTICAL STUDY ON THE INCIDENCE OF ALLERGIC DISEASES TREATED WITH DESLORATADINE AND LEVOCETIRIZINE AT “ATOPIA” ALLERGOLOGY MEDICAL CENTER, IAŞI, ROMANIA

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STATISTICAL STUDY ON THE INCIDENCE OF ALLERGIC DISEASES TREATED WITH DESLORATADINE AND LEVOCETIRIZINE AT “ATOPIA” ALLERGOLOGY MEDICAL CENTER, IAŞI, ROMANIA (Abstract): Allergies and allergic manifestations are a major health problem in our country and around the world. Epidemiological data have reported an increased incidence of allergic diseases up to 10-30% over the past decades. **Aim:** To evaluate the incidence of the most common allergic diseases treated with desloratadine or levocetirizine, second-generation antihistamines. **Material and methods:** For diagnosis and assessment of treatment with the two antihistamines the following tests were performed: allergy skin testing, immunoglobulin E blood levels, evaluation of target organ for allergic reaction (lung function tests, nasal and conjunctival examination, assessment of bronchial inflammation). **Results:** We conducted a retrospective study that included 365 patients (64% women and 36% men) diagnosed with different types of allergy in the "Atopia" Allergology Medical Center at Iaşi during the interval August 2012 – August 2013. Patients were aged 2 to 90 years (mean age group 35.98 years; 39.55 years for women, and 29.74 years for men). **Conclusions:** The majority of patients were from urban areas (82%). The most common allergic diseases in the study group were: urticaria (21%), allergic rhinoconjunctivitis (14%), allergic bronchitis (14%) and allergic asthma (12%). **Keywords:** DESLORATADINE, LEVOCETIRIZINE, URTICARIA, ALLERGIC ASTHMA, RHINOCONJUNCTIVITIS

According to the latest statistics, today, one of four people is affected by an allergic disease (1). Allergy is the immune response to common elements in the environment, which usually do not cause any reaction. An allergic reaction is triggered by substances called allergens and they are frequently represented by pollens, molds, dust mites, pet dander, specific foods, and chemicals (isocyanates, anhydrides, formaldehyde, some metals - chromium, nickel) (2).

Hereditary predisposition is a major risk factor; if one parent is allergic, the estimated risk of the child to be allergic is 48% and increases to 70% if both parents are allergic.

A growing number of studies have shown that allergies are becoming more complex and persistent, patients being now sensitized to more and more trigger factors, facing increasingly severe and persistent
symptoms.
Despite great progress achieved in the last 10 years in the research of treatment and causes regarding allergic disorders, there are still many issues to be solved towards achieving the objectives of more effective therapies, even a possible prevention (3, 4).

Desloratadine and levocetirizine, the most commonly prescribed antihistamines in the world nowadays, have a better efficiency and safety compared with first-generation antihistamines and a long latency period.

Desloratadine and levocetirizine are very efficient in the treatment of allergic diseases, including seasonal allergies, such as perennial allergic rhinitis, urticaria, and allergic conjunctivitis.

Although they are among the most frequently prescribed drugs, second-generation antihistamines are not without side effects. The most important potential side effects include effects on the nervous and cardiovascular system and drug interactions (5).

MATERIAL AND METHODS
We conducted a clinical and pharmaco-toxicological retrospective study on a series of 365 patients diagnosed and treated at the Iasi "Atopia" Allergology Medical Center during a one-year interval (2012-2013). The diagnosis of allergic disorder was made on history and some allergy tests: allergy skin testing, immunoglobulin E blood levels, lung function tests, nasal and conjunctival examination, assessment of bronchial inflammation.

Patients diagnosed with allergic disorders received either desloratadine or levocetirizine alone, or association of these two along with other drugs such as antileukotriene agents, steroids (inhaled or topical), immunomodulatory agents.

Of the study patients, 64% were females and 36% males (fig. 1). Patients came from urban areas (82%) and rural areas (18%) (fig. 2). Patients were aged between 2 years and 90 years; the average age was 35.98 years (39.55 years for women, and for men 29.74 years) (fig. 3).
Statistical study on the incidence of allergic diseases treated with desloratadine and levocetirizine at “Atopia” allergology medical center, Iași, Romania

From allergy observation sheets we collected data regarding the incidence of allergic clinical manifestations of patients treated with desloratadine or levocetirizine, and data on side effects caused by these drugs to the study patients.

Data were statistically analyzed using MS Excel software, interpreted, and corroborated with references in the literature.

RESULTS AND DISCUSSION
Distribution of allergic diseases in the studied group is presented in figure 4.

We mention that each patient presented one to three allergic diseases and the total number of diseases was 756, corresponding to an average of 2.07 diseases / patient.

The most common allergic diseases in the study group were: urticaria, allergic bronchial asthma, allergic bronchitis, allergic rhino conjunctivitis and other allergic manifestations, such as: allergic rhinitis, allergic dermatitis, angioedema, allergic conjunctivitis and allergic laryngitis.

![Fig. 4. Distribution of allergic diseases in the study group](image)

In table I and figure 5 are shown the demographic data of patients (gender, average age and environment), as well as the incidence of major diseases.

Analysis of allergic diseases in the studied series showed predominance of urticaria (67.52%) and allergic rhino conjunctivitis (66.04%) in women, and allergic asthma (41.94%) and allergic bronchitis (35.24%) in male.

<table>
<thead>
<tr>
<th>Allergic diseases</th>
<th>Gender</th>
<th>Average age (years)</th>
<th>Environment</th>
<th>Total diagnoses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (%)</td>
<td>F (%)</td>
<td>R (%)</td>
<td>U (%)</td>
</tr>
<tr>
<td>Allergic asthma</td>
<td>41.94</td>
<td>58.06</td>
<td>35.34</td>
<td>17.20</td>
</tr>
<tr>
<td>Urticaria</td>
<td>32.48</td>
<td>67.52</td>
<td>36.80</td>
<td>19.75</td>
</tr>
<tr>
<td>Allergic bronchitis</td>
<td>35.24</td>
<td>64.76</td>
<td>36.22</td>
<td>22.86</td>
</tr>
<tr>
<td>Allergic rhino conjunctivitis</td>
<td>33.96</td>
<td>66.04</td>
<td>34.40</td>
<td>18.87</td>
</tr>
<tr>
<td>Other allergic manifestations</td>
<td>36.61</td>
<td>63.39</td>
<td>34.67</td>
<td>18.64</td>
</tr>
</tbody>
</table>
The study group included a two-year-old patient with urticaria by sensitization to anti-inflammatory syrup (ibuprofen), and a 90-year-old patient with chronic urticaria by sensitization to antibiotics.

Table II presents the number of atopic cases and cases with predominant allergic diseases in the study group, respiratory and cutaneous type. Figures 6 and 7 show that 8% of the cases were atopic and 41% had skin allergies, this type of allergy being the most common in the atopic patients. Associated pathologies were present in 21.4% of the patients.

Therefore, 8% of the patients had hereditary predisposition to develop allergy, a much lower percentage than in the literature (6, 7).

The most common allergens involved in sensitization of the patients, responsible for producing allergic manifestations, were: mites, house dust, pollen, mold, animal dander, food (especially fish); these allergenic agents can be found in similar studies (7). Overall, the prevalence of sensitization to indoor allergens was increased in patients...
with cutaneous manifestations, while the prevalence of sensitization to outdoor allergens was linked to respiratory manifestations. The presence of concomitant polysensitization to multiple allergens was frequent in patients with cutaneous disorders. Also, patients who simultaneously show sensitization to more than one allergen manifest a greater allergic poly symptomatology than those with mono sensitization.

### TABLE II
Atopy, allergic diseases and associated pathology of patients

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Number of cases</th>
<th>Percentage distribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family history</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cases with no atopy</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Cases with atopy</td>
<td>29</td>
<td>8</td>
</tr>
<tr>
<td>Undefined cases</td>
<td>328</td>
<td>90</td>
</tr>
<tr>
<td>Total</td>
<td>365</td>
<td>100</td>
</tr>
<tr>
<td><strong>Allergic diseases</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allergic asthma</td>
<td>86</td>
<td>24</td>
</tr>
<tr>
<td>Urticaria</td>
<td>150</td>
<td>41</td>
</tr>
<tr>
<td>Other allergic diseases</td>
<td>129</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>365</td>
<td>100</td>
</tr>
<tr>
<td><strong>Associated pathology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cases with associated pathology</td>
<td>78</td>
<td>21.4</td>
</tr>
<tr>
<td>Cases with no associated pathology</td>
<td>287</td>
<td>78.6</td>
</tr>
<tr>
<td>Total</td>
<td>365</td>
<td>100</td>
</tr>
</tbody>
</table>

**Fig. 6.** Distribution of cases according to atopic structure

**Fig. 7.** Incidence of allergic diseases
We studied the incidence of the most significant side effects noted in specialized studies (8, 9).

Of all patients (365) treated with desloratadine or levocetirizine (5 mg/day), 2.74% experienced side effects (xerostomia, headache, fatigue, drowsiness, exhaustion and myalgias). At 61 years-old female patient, from an urban area, diagnosed with bronchitis and allergic rhino conjunctivitis, treated with desloratadine (5mg/day), the following side effects were recorded: asthenia, headache, myalgias.

Of the two study substances levocetirizine has greater potency, as confirmed by in vivo studies, in humans.

Levocetirizine may cause drowsiness in sensitive individuals.

Although desloratadine is less efficient, it has the advantage of a longer half life. Its most important side effect is drowsiness.

Desloratadine has a safety profile similar to levocetirizine, does not cross the blood-brain barrier, and has a very low sedation rate, which gives increased safety and tolerability (10). According to the literature, desloratadine and levocetirizine are "non-sedating" antihistamines, but the best would be to describe them as having minimal sedative effects, at therapeutic doses (11, 12).

The efficacy and safety of second-generation antihistamines, supported in the literature, is also confirmed by our study by the diminution of allergic symptoms and decreased incidence of treatment-emergent adverse events in our study patients.

CONCLUSIONS
We conducted a statistical study (August 2012 - August 2013) on the incidence of allergic diseases in 365 patients treated with desloratadine or levocetirizine in the "Atopia" Allergology Medical Center at Iasi. We followed the adverse drug reactions during treatment.

Data were collected from allergy observation sheets and statistical analysis was performed using MS Excel software.

In the study group (365 patients), the incidence of allergic diseases was: urticaria (21%), allergic bronchitis (14%), allergic rhino conjunctivitis (14%), allergic asthma (12%), and other allergic manifestations (19%).

Of all the patients treated with desloratadine or levocetirizine (5 mg/day), 2.74% experienced side effects: xerostomia, headache, fatigue, drowsiness, and muscle aches.

REFERENCES
Statistical study on the incidence of allergic diseases treated with desloratadine and levocetirizine at “Atopia” allergology medical center, Iaşi, Romania


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**NEWS**

**CAESAREAN SECTION INCREASED RISK OF ALLERGIES**

Intestinal microbiota stimulates the development and maturation of the immune system early in life. At birth the child's gut is colonized by bacteria from the mother's vaginal microbiota, included Bacteroidetes phylum which is linked to protection against allergies. The caesarean section (CS) reduces microbial exposure and the immune system reacts excessively against innocuous antigens in its surrounding. Using DNA sequencing and computer analysis methods Jakobsson and colleges showed that infants born through CS were less colonized with the Bacteroidetes phylum, and have lower blood levels of the Th1-associated chemokines for inhibit allergic immune responses. The researchers concluded that CS induced a “lower total microbial diversity, delayed colonization of the Bacteroidetes phylum and reduced Th1 responses”. These results explain the higher frequency of allergies in babies born by cesarean section than in those born vaginally (Jakobsson HE, Abrahamsson TR, Jenmalm MC, Harris K, Quince C, Jernberg C et al. Decreased gut microbiota diversity, delayed Bacteroidetes colonisation and reduced Th1 responses in infants delivered by Caesarean section. *Gut*, 2013; DOI: 10.1136/gutjnl-2012-303249).

*Cătălina Luca*