92

Piotr Siergiejko – „Dwutygodniowa obserwacja wybranych wskaźników …”

The bronchial provocation test was conducted by the Ryan’ modified protocol. The

modification referred to an extended time of an aerosol production from 0.6 to 3.0 second and an increased amount of breaths from 5 to 10. Commercial allergen extracts from Allergopharma (Germany) were used in conducted provocation tests. The aerosol was generated using De Vilbiss 646 jet nebulizer connected to Koko Digidoser (PDS Ferraris – US), which was used as a spirometer and dosimeter. An allergen was administered by the inhalation of increasing concentrations 1.6, 8, 40, 200, 1000 and 5000SBU/ml in 15- minute intervals. Administration of allergen ended after reaching decrease in FEV1 of at least 20% from the control value (after saline inhalation). In case of lack of such decrease, administration was ended after inhalation the highest concentration prepared. Afterwards

spirometry was carried out eight times hourly to detect the possible late asthmatic reaction.

Material and Methods: Prior to the study, consent of the Bioethical Committee of Medical

University of Białystok was received. In the study were enrolled 32 subjects with allergy to dust mites or/and, grass pollen or/and, birch pollen which was confirmed by serum sIgE

evaluation. The study included 16 females and 16 males.

Aim: Main aim of the study was to evaluate the dynamics and the duration of changes in

FENO after the single bronchial allergen challenge. An additional aim was to estimate the effect of sIgE serum concentration on changes in spirometry and FENO after provocation

test with allergen.

Introduction: The inhalation of allergen by allergic subjects causes exacerbation of allergic

reaction, not always manifested with an increase in clinical symptoms. So far has not been found an unequivocal answer to the question of how long the inflammatory reaction induced in that reaction lasts. To measure the intensity and duration different parameters were used, including: exacerbation of clinical symptoms, changes in spirometry and the

concentration of nitric oxide in the exhaled air.

10. Summary

10. Summary

93

Piotr Siergiejko – „Dwutygodniowa obserwacja wybranych wskaźników …”

The sex of the participants had not any impact on the type of bronchospastic reaction as

well as on FENO.

A peak of FENO was observed between 3rd and 5th day after the inhalation of allergen.

After 14 days in the group of patients with observed dual asthmatic reaction in the 6 class of sIgE, FENO remained significantly increased in comparison to the initial outcome.

Increase in FENO was proportional to the concentration of specific IgE in the serum.

However the most interesting outcomes considered measurements of FENO. Among

patients in group with sIgE in the 0 class, changes of FENO after provocation with allergen were not statistically significant.

It should be emphasized the dual asthmatic reaction measured by spirometry

(EAR+LAR+) was recorded in 9 participants (28%), mainly in groups with the concentration of IgE in the 5 and the 6 class. In 17 subjects (53%) the outcome of

bronchial allergen challenge was negative ( decrease in FEV1 <20% from control value ).

We analysed the association between the presence of particular types of bronchospastic

reactions and FENO dependent on sex and serum concentration of allergen specific IgE against allergens used in provocation test. The study included one group of men and one of females, 16 participants each. With the criterion of division being the concentration of the sIgE expressed in classes, groups were divided as follows: the 0 class- n=5, the 1 and the 2

class- n=0, the 3 class- n=7, the 4 class- n=4, the 5 class- n=6, the 6 class- n=9.

Results: After an evaluation of changes in FEV1, the positive outcome was found in 15

patients i.e. single early asthmatic response (EAR+LAR-) n=6 and dual reaction (EAR+LAR+) n=9, while in 17 patients the result was negative (EAR-LAR-). The isolated late reaction (EAR-, LAR+) was not recorded.

Obtained results were analysed using Statistica 9.0.

To measure FENO, the device Niox®Mino (Aerocrine, Sweden) was used. The first day

measurement of FENO was conducted twice, before the beginning of the provocation test, and 8 hours after last dose of the allergen inhalation, always prior to the spirometry. In the following 14 days the patient carried out by self the measurements of FENO (two

following values should not vary by more than 10 %).

10. Summary

94

Piotr Siergiejko – „Dwutygodniowa obserwacja wybranych wskaźników …”

bronchial

after

FENO

elevated

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remaining

longer

provocation, the higher and

provocation test with allergen.

4. The higher concentration in the serum of IgE antibodies against allergen used to the

3. The type of bronchial reaction was depended on the concentration of specific antibodies

class E against the allergen used in the provocation- with the increase in sIgE concentration in the serum, was noted the increase of frequency of late responses.

2. Two weeks after provocation test in the majority of examined subjects, concentrations of

FENO remained elevated in comparison to the initial outcome.

1. A peak of FENO after the single inhalation of allergen was observed between 3rd and

5th day.

Conlusions:

10. Summary