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Relationship between filaggrin, eosinophilic major basic protein and atopic diseases in children

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Background: Atopic diseases are a group of diseases linked by a shared underlying problem with the immune system. The main feature is the development of a particular immunoglobulin (IgE) directed against allergens that are usually harmless. Childhood atopic disease includes atopic dermatitis, allergic rhinitis, asthma and food allergy.

Aim of the Study: This study aimed at determination of the possible relationship between filaggrin, eosinophil's major basic protein (MBP), IgE and the atopic march in children with either bronchial asthma, allergic rhinitis, atopic dermatitis or combination of more than one of these allergic diseases thus a new therapy for these common allergic diseases can be postulated.

Subjects & Methods: This is a prospective case-control study, which enrolled a total of 88 allergic children, 45 males subjects (51%), 43 females subjects (49%), with a mean age of 6.7 years (± 1.27), as well as 100 (60 males and 40 females) age and sex matched children who are free of any atopic disease as controls. Out of 88 atopic patients, Bronchial asthma (BA) (n=45; age 7.42 ± 1.46), Allergic rhinitis (AR) (n=20; age 4.21 ± 1.72), Atopic dermatitis (AD) (n=13; age 1.43 ± 1.36), patients having mixed atopic disorders (n=10; age 6.20 ± 1.34) were selected. Demographic and clinical information were collected, including gender, disease onset time, and personal history of atopic disorders. BA, AR and AD children patients were diagnosed according to recent guidelines described by global initiatives for asthma (GINA) for BA, allergic rhinitis and its impact on asthma (ARIA) for AR and SCORAD index for AD. Venous blood samples from all studied patients and controls were taken and sera were tested for filaggrin, eosinophilic major basic protein and immunoglobulin E.

Results: The data showed highly significant increase in serum filaggrin levels in 88 different atopic disorders patients as well as in AD, AR, BA and multiple atopic disorders patients as compared to controls. Regarding major basic protein (MBP) levels were highly significantly increased in 88 different atopic disorders patients as well as AD, BA, and AR patients compared to controls whereas they are only significantly increased in children with multiple atopic disorders compared to controls. The serum levels of total IgE were found to be significantly higher in patients with different atopic disorders as well as in AR patients and AD patients compared with controls, whereas in patients with BA and those with multiple atopic disorders IgE levels were higher than those of controls inspite of this was not of statistical significance.

Conclusion & Recommendations: The levels of filaggrin, MBP and IgE were increased in children patients with BA, AD and AR and in those patients who were having multiple atopic disorders compared to controls thus serum levels of filaggrin, MBP and IgE might be useful in the diagnosis of BA, AD and AR in children. Great efforts and further researches must be done in order to invent novel agents that can antagonize or modify the effects of these markers (filaggrin, MBP and IgE) on the atopic march thereby better treatment, prevention and control of these allergic diseases in children can be achieved.

Biography

Alameldin M Abdallah is an Associate Professor of Pediatrics at Sulaiman El Rajhi College, Saudia Arabia. He received MD (doctorate) in Pediatrics from Assiut University, Egypt at 2009 and then started to work as a Lecturer of Pediatrics at Assiut University till 2014 then started to work as an Assistant Professor of Pediatrics at Assiut University Children Hospital at 2014. He successfully published 7 publications including 3 international ones. He is a member in (EAACI) European Academy of Allergy and Clinical Immunology since 2012 till now, teaching & training of pediatrics course either for medical, pharmacy or higher studies students. He is training pediatric residents and medical students for workshops either for pediatrics, pulmonology and PICU skills. He is Supervising 3 MD Pediatric thesis, and 10 Master's degrees pediatric thesis. He participated in the organization and proceedings of the scientific conferences on pediatrics held at Assiut Faculty of Medicine from 2009 to 2012. He has participated in organizing the Pediatric Pulmonology Unit and Allergy and Immunology Unit in Assiut University Children Hospital. He has published one book and he has been sharing in many international conferences including EAACI annual meetings from 2012-2015.

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