

## Contact Allergy in Children

ANNE BIRGITTE NØRREMARK SIMONSEN

Department of Dermatology and Venereology, Aarhus University Hospital, P.P. Ørumsgade 11, DK-8000 Aarhus C, Denmark.  
E-mail: anne.birgitte.simonsen@regionh.dk

Anne Birgitte Nørremark Simonsen defended her thesis “Allergic contact dermatitis in children” on April 5, 2018 in Aarhus University Hospital, Aarhus, Denmark. Main supervisor: Mette Sommerlund, Associate Professor, MD, PhD, Aarhus University Hospital, Aarhus. Co-supervisors: Mette Deleuran, Associate Professor, MD, DMSc, Aarhus University Hospital, Aarhus, Charlotte Gotthard Mørtz, Professor, MD, PhD, Odense University Hospital, Odense, and Jeanne Duus Johansen, Professor, MD, DMSc, Copenhagen University Hospital, Herlev-Gentofte, Denmark. Assessment Committee: An Goossens, Professor, MD, PhD, DMSc, University Hospital of Leuven, Belgium, and Regina Fölster-Holst, Professor, MD, PhD, Universitätsklinikum Schleswig-Holstein, Kiel, Germany

Contact allergy and allergic contact dermatitis was traditionally considered uncommon among children due to the widely held misconceptions that the immune system of children was immature and that children's exposure to contact allergens was limited.

The impaired skin barrier in atopic dermatitis facilitates the penetration of allergens. As children with atopic dermatitis are exposed to emollients and topical agents from an early age and for prolonged periods of time, this could theoretically increase the risk of contact sensitization. Whether hidden contact allergies can play a role in the skin symptoms in patients with atopic eczema and to what extent is unclear.

Early identification of the causative allergen and subsequent allergen avoidance is crucial in order to reduce the duration and durability of the disease and its progression, but how the positive or negative findings influence the course of skin symptoms in children referred for patch testing had never previously been explored.

The thesis consisted of 3 studies: An epidemiological study, a follow-up study, and a clinical study. The overall objectives were *i*) to estimate the prevalence of contact allergy in Danish children and adolescents referred for patch testing, *ii*) to investigate the course of skin symptoms and effect of contact allergy and allergic contact dermatitis on the children's quality of life, and *iii*) to assess the problem of contact allergy in children with atopic dermatitis.

Based on the results of the 3 studies we found that allergic contact dermatitis is a common diagnosis among Danish children and adolescents with eczema. The results of our follow-up study indicated that there is a significant risk of childhood eczema becoming chronic, regardless of the nature of the eczema, and that having persistent eczema is a strong and significant risk factor for having severely impaired life quality.

Finally, we showed that children with atopic dermatitis have unacknowledged contact allergies that may contribute to or maintain the skin symptoms. The risk of contact allergy was significantly correlated to the severity of atopic dermatitis. In children with atopic dermatitis, metals and components of topical skin care products were the most frequent sensitizers.



Regina Fölster-Holst



Mette Sommerlund



Mette Deleuran



Charlotte Gotthard Mørtz



An Goossens



Jeanne Duus Johansen

### LIST OF PUBLICATIONS

- I. Simonsen AB, Deleuran M, Mørtz CG, Johansen JD, Sommerlund M. Allergic contact dermatitis in Danish children referred for patch testing – a nationwide multi-centre study. *Contact Dermatitis* 2014; 70: 104–111.
- II. Simonsen AB, Sommerlund M, Deleuran M, Mørtz CG, Johansen JD. Course of skin symptoms and quality of life in children referred for patch testing – a long-term follow-up study. *Acta Derm Venereol* 2015; 95: 206–210.
- III. Simonsen AB, Johansen JD, Deleuran M, Mørtz CG, Skov L, Sommerlund M. Children with atopic dermatitis may have unacknowledged contact allergies contributing to their skin symptoms. *J Eur Acad Dermatol Venereol* 2018; 32: 428–436.