

Allergic Disease and Atopic Sensitization in Children in Relation to Measles Vaccination and Measles Infection

Helen Rosenlund, MSc^{a,b}, Anna Bergström, PhD^a, Johan S. Alm, MD, PhD^{c,d}, Jackie Swartz, MD^e, Annika Scheynius, MD, PhD^f, Marianne van Hage, MD, PhD^g, Kari Johansen, MD, PhD^h, Bert Brunekreef, PhD^{i,j}, Erika von Mutius, MD^k, Markus J. Ege, MD^k, Josef Riedler, MD^l, Charlotte Braun-Fahrländer, MD^m, Marco Waser, PhD^m, Göran Pershagen, MD, PhD^{a,n}, and the PARSIFAL Study Group

^aInstitute of Environmental Medicine, ^bCentre for Allergy Research, and ^cSection of Pediatrics, Department of Clinical Science and Education, Karolinska Institutet, Stockholm, Sweden; ^dSection of Pediatrics, Sachs' Children's Hospital, Södersjukhuset, Stockholm, Sweden; ^eVidar Clinic, Järna, Sweden; ^fClinical Allergy Research Unit and ^gClinical Immunology and Allergy Unit, Department of Medicine Solna, Karolinska Institutet and University Hospital, Stockholm, Sweden; ^hDepartment of Virology, Swedish Institute for Infectious Disease Control, Solna, Sweden; ⁱInstitute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands; ^jJulius Centre for Health Sciences and Primary Care, University Medical Centre, Utrecht, Netherlands; ^kDr von Hauner Children's Hospital, University of Munich, Munich, Germany; ^lChildren's Hospital, Schwarzach, Austria; ^mInstitute of Social and Preventive Medicine, University of Basel, Basel, Switzerland; ⁿDepartment of Occupational and Environmental Health, Stockholm County Council, Stockholm, Sweden

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What's Known on This Subject

Measles infection may have an immunosuppressive effect and, therefore, might affect the development of allergy, but the scientific evidence is inconsistent. Furthermore, measles vaccine has been associated with the development of allergy in some, but not all, previous studies.

What This Study Adds

This study adds a methodologic aspect to the association between measles vaccination and/or measles infection and allergic disease and atopic sensitization. In this study, we took confounding from disease-related modification of exposure into account.

ABSTRACT

OBJECTIVE. Our aim was to investigate the role of measles vaccination and measles infection in the development of allergic disease and atopic sensitization.

METHODS. A total of 14 893 children were included from the cross-sectional, multi-center Prevention of Allergy–Risk Factors for Sensitization in Children Related to Farming and Anthroposophic Lifestyle study, conducted in 5 European countries (Austria, Germany, the Netherlands, Sweden, and Switzerland). The children were between 5 and 13 years of age and represented farm children, Steiner-school children, and 2 reference groups. Children attending Steiner schools often have an anthroposophic (holistic) lifestyle in which some immunizations are avoided or postponed. Parental questionnaires provided information on exposure and lifestyle factors as well as symptoms and diagnoses in the children. A sample of the children was invited for additional tests, and 4049 children provided a blood sample for immunoglobulin E analyses. Only children with complete information on measles vaccination and infection were included in the analyses (84%).

RESULTS. In the whole group of children, atopic sensitization was inversely associated with measles infection, and a similar tendency was seen for measles vaccination. To reduce risks of disease-related modification of exposure, children who reported symptoms of wheezing and/or eczema debuting during first year of life were excluded from some analyses. After this exclusion, inverse associations were observed between measles infection and “any allergic symptom” and “any diagnosis of allergy by a physician.” However, no associations were found between measles vaccination and allergic disease.

CONCLUSION. Our data suggest that measles infection may protect against allergic disease in children. *Pediatrics* 2009;123:771–778

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Key Words

allergic disease, atopic sensitization, measles infection, measles vaccination, Steiner-school children, farm children

Abbreviations

CI—confidence interval
IgE—immunoglobulin E
MMR—measles, mumps, and rubella
OR—odds ratio
PARSIFAL—Prevention of Allergy–Risk Factors for Sensitization in Children Related to Farming and Anthroposophic Lifestyle

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Address correspondence to Helen Rosenlund, MSc, Karolinska Institutet, Institute of Environmental Medicine, Department of Environmental Epidemiology, Box 210, SE-171 77 Stockholm, Sweden. E-mail: helen.rosenlund@ki.se.

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THE PREVALENCE OF immunoglobulin E (IgE)-mediated allergic disease in children has increased during the past decades,^{1,2} although recent reports suggest that the occurrence has stabilized.^{3,4} Because allergic diseases mostly debut in childhood, it is of great interest to study exposures that occur early in life and could have an effect on the maturation of the immune system.

The occurrence of many types of childhood infections has decreased markedly during past decades because of