

Protocol

Epidemiology of hand eczema in the general population: prevalence, temporality and severity

*Anna Sophie Quaade¹, Anne Birgitte Simonsen^{1,2}, Anne-Sofie Halling², Jacob Pontoppidan Thyssen^{1,2},
Jeanne Duus Johansen¹*

¹Department of Dermatology and Allergy, Herlev and Gentofte Hospital, National Allergy Research Centre, University of Copenhagen, Hellerup, Denmark.

²Department of Dermatology and Allergy, Herlev and Gentofte Hospital, University of Copenhagen, Hellerup, Denmark.

Background

Hand eczema (HE) is a common inflammatory skin disease associated with a substantial burden both for patients and society. Chronic hand eczema (CHE) can be defined by disease duration of HE >3 months, or ≥ 2 flares within the previous 12 months. [1] However, there is a lack of consistency and consensus regarding the terminology and definition of CHE.[2]

In the past, several studies have investigated the prevalence of HE in the general population. In a systematic review of studies reporting the prevalence of HE in the general population between 1964 and 2007, Thyssen et al. found an estimated point prevalence of 4 % and a lifetime prevalence of 15 %. [3] In contrast to the prevalence of HE in general, epidemiological data on the chronicity (i.e. duration and flares/eruptions of HE) and severity of HE from the general population is limited.

In the present study, our primary aim is to estimate an updated exact prevalence of HE in the general population, both overall and in various subgroups, with data from the previous review combined with data from an updated search for relevant studies published from 2007-2020. Moreover, all studies from 1964-2020 will be reviewed for the following secondary outcomes of interest: incidence, history of atopic dermatitis (AD), duration and eruptions of HE and severity of HE.

Methods

This study is conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Two screeners (A.S.Q. and A.B.S) will independently search PubMed and Embase for studies reporting on the occurrence of HE in the general population using the following search terms: “((General population OR unselected OR epidemiology OR healthy) AND (Hand eczema OR Hand dermatitis) AND (prevalence OR incidence))”. All articles from 2007 through April 2020 are eligible for inclusion.

Inclusion and exclusion criteria

To qualify for inclusion, studies must be original and available in full-text. Furthermore, studies must present absolute numbers or percentages of the prevalence of HE in unselected individuals from all age groups.

Data-extraction and data-synthesis

Initially, records are screened independently by two reviewers according to title and abstract. Potential disagreements will be resolved through discussion with a third reviewer (A.H.). The remaining studies, including those without an abstract, will be selected for full-text assessment. Furthermore, reference lists of included studies will be reviewed to identify additional studies. The primary outcome of interest is the prevalence of HE in the general population. Secondary outcomes of interest are: incidence, history of AD, duration and eruptions and severity of HE. Furthermore, we will calculate the prevalence of HE in the general population for the following stratifications: all studies, by gender, studies of adults (≥ 18), studies of children and adolescents (< 18), by geographic area and country, by Newcastle-Ottawa Scale score (good quality or fair/poor quality), and by year published.

We will perform a meta-analysis to obtain pooled effect estimates for all endpoints. Pooled proportions with a 95% CI will be calculated using Stats-Direct version 3 (StatsDirect Ltd, Cheshire, U.K.). The use of random effect models or fixed effect models will be decided for each analysis based on the heterogeneity of analyses. For each endpoint the heterogeneity will be assessed using the Cochran's Q test and I^2 statistic. If substantial heterogeneity is observed at any end point, we will perform sensitivity analyses to explore the reasons for such heterogeneity.

References:

- [1] T. L. Diepgen *et al.*, "Guidelines for diagnosis, prevention and treatment of hand eczema.," *J. Dtsch. Dermatol. Ges.*, vol. 13, no. 1, pp. e1-22, Jan. 2015.
- [2] J. P. Thyssen, J. I Silverberg, and E. Guttman-Yassky, "Chronic Hand Eczema Understanding Has Ramifications On Clinical Management.," *Journal of the European Academy of Dermatology and Venereology : JEADV*. England, Mar-2020.
- [3] T. J.P., J. J.D., and L. A., "The epidemiology of hand eczema in the general population - Prevalence and main findings," *Contact Dermatitis*, vol. 62, no. 2, pp. 75–87, 2010.