

Research letter

Ten-year incidence of contact dermatitis in a prospective cohort of healthcare workers in Trieste hospitals (North East of Italy) 2004–2013

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DEAR EDITOR, The incidence of occupational contact dermatitis (OCD) in different European countries and the U.S.A. ranges between 0.5 and 1.9 cases per 1000 workers per year.^{1–3} The incidence of OCD has decreased in the last 10–15 years, with incidence rates changing from 1.2 to 0.56 cases per 1000 person-years from 1993 to 1996 in Germany^{1,3} and from 0.29 to 0.1 cases per 1000 person-years from 1997 to 2008 in a Czech study.⁴ The incidence of notified occupational skin diseases for healthcare workers (HCWs) was 3.1 cases per 1000 workers per year in the U.S.A., 1.5 in Bavaria, 1.5 in Denmark (among nurses), 0.4 in Northern Bavaria and 0.1–0.29 in the Czech Republic.⁴

However, few epidemiological data are available on the incidence of this disease,² and no data are available for Italy. The aim of our study was to evaluate the incidence of occupational irritant contact dermatitis (ICD), allergic contact dermatitis (ACD) and contact urticaria (CU) in a cohort of HCWs at Ospedali Riuniti di Trieste from 2004 to 2013. Occupational disease was defined as clinical data suggesting an association with job tasks, and dermatitis that improved out of work. ACD was defined when patch tests were positive and relevant.

All workers received information on how to protect the skin, together with hand creams, gel alcohol and gloves to use, during periodical medical examination at the beginning of the work in hospital and during follow-up. All workers used nonpowdered latex gloves with low protein release. Nonlatex gloves (vinyl) were available for all workers, and their use was compulsory for symptomatic or latex-sensitized individuals.

The study population consisted of 2593 HCWs and 1855 new employees who started work at the hospital between 2004 and 2013 (95.7% of eligible employees). No differences in age, sex or job seniority were present between the participants and all eligible employees (data not shown). At the first control all participants underwent clinical evaluation, were prick tested for common allergens and latex and filled in a questionnaire.⁵ Every 2 years the participants underwent a new medical examination and completed the questionnaire again. New symptomatic cases were prick tested with the same latex extract and patch tested with standard and professional haptens.

Data analysis was performed with the SPSS program for Windows, release 9.0 (IBM, Armonk, NY, U.S.A.). Incidence was calculated considering exposed subjects in person-years, and new symptomatic cases registered in each year of the follow-up. We performed weighted regression analyses using duration of follow-up as the weight to account for the increased risk of developing the outcomes associated with a longer follow-up. For all statistical analyses, a 0.05 level of significance was used, and all P-values were two sided.

Table 1 Number of exposed individuals and person-years evaluated, and the number and calculated incidence of occupational contact dermatitis (OCD), irritant contact dermatitis (ICD), allergic contact dermatitis (ACD) and contact urticarial (CU) among healthcare workers from 2004 to 2013

Year	Exposed cases	Person-years studied	Cases of OCD, n (%)	Female, n (%)	Age (years), mean $\pm$ SD	ICD, n (%)	ACD, n (%)	CU, n (%)
2004	2503	2450	11 (4.4)	11 (100)	40.2 $\pm$ 4.2	2 (0.8)	9 (3.7)	0
2005	2340	2320	9 (3.9)	8 (89)	43.3 $\pm$ 7.9	2 (0.8)	7 (3.0)	0
2006	2456	2440	17 (6.9)	15 (88)	42.6 $\pm$ 7.9	8 (3.2)	7 (2.8)	4 ^a (1.6)
2007	2472	2448	4 (1.6)	3 (75)	36.3 $\pm$ 5.7	3 (1.2)	0	2 ^a (0.8)
2008	2538	2530	11 (4.3)	11 (100)	43.1 $\pm$ 12.0	3 (1.0)	7 (2.4)	2 ^a (0.8)
2009	2611	2580	12 (4.6)	10 (83)	41.8 $\pm$ 7.1	3 (1.2)	7 (2.7)	2 (0.7)
2010	2622	2584	18 (6.9)	15 (83)	33.0 $\pm$ 4.9	8 (3.1)	7 (2.7)	4 ^b (1.5)
2011	2629	2600	12 (4.6)	9 (88)	39.4 $\pm$ 10.6	8 (3.0)	4 (1.5)	2 (0.7)
2012	2660	2620	8 (3.0)	5 (63)	39.8 $\pm$ 14.1	4 (1.5)	3 (1.1)	1 (0.4)
2013	2665	2630	11 (4.1)	9 (81)	36.6 $\pm$ 6.4	6 (2.3)	4 (1.5)	1 (0.4)
Total	25 496	25 202	113 (4.5)	96 (85.0)	39.6 $\pm$ 8.9	47 (1.9)	55 (2.2)	18 ^c (0.7)

^aOne with a latex-positive prick test. ^bTwo with a latex-positive prick test. ^cFive (0.2%) with a latex-positive prick test.

The results are reported in Table 1. We found incidences of 1.9 and 2.2 per 1000 person-years for ICD and ACD, respectively. The incidence of latex sensitization was 0.2 cases per 1000 person-years. No other data are available for HCWs with a prospective cohort design, but other authors have calculated incidence for occupational skin disease analysing occupational disease registers.^{1,4} Our incidence rates are higher than those reported by these authors,^{1,4} because they are the results of a longitudinal cohort of workers followed for 10 years, while previous data are derived from analyses of national registers of occupational diseases, where more severe cases were reported.

To compare our data with the results of a prospective cohort, we can consider the study by van der Molen *et al.* in Dutch construction-sector workers.⁶ They found 2.14 cases per 1000 person-years. This result is in the same magnitude of our result (4.5 cases per 1000 person-years for OCD), and it is known that HCWs may present an increased incidence of contact dermatitis compared with construction-sector workers.

The overall incidence was quite stable in the years considered, with a mild increase in ICD and a decrease in ACD and CU. A decreasing trend for OCDs was reported by Machovcová *et al.*⁴ in relation to the spread of individual protection measures and the replacement of the most harmful substances and gloves with potential sensitizers. An increasing trend in the incidence of ICD was reported more recently due to the improvement of hygiene procedures to reduce healthcare-associated infections.⁷

Concerning CU, we found an incidence of 0.7 cases per 1000 person-years, and there are no other incidence data, while there are data on latex sensitization. Allmers *et al.* showed that the incidence of latex sensitization fell from 0.69 to 0.21 per 1000 person-years from 1998 to 2002.⁸ Taking into account only people sensitized to latex, our incidence is equal (0.2 cases per 1000 person-years).

In our study the incidence was significantly higher for nurses (6.14 cases per 1000 person-years) and lower for medical doctors (1.59 cases per 1000 person-years), as nurses are at higher risk to develop OCD.^{8,9} Despite preventive measures being adopted, OCD incidence is high in our cohort, suggesting the need to improve skin protection to avoid the onset of new cases.

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Unità Clinico Operativa di Medicina del Lavoro, Dipartimento di Scienze di Medicina Pubblica, Università degli Studi di Trieste, Via della Pietà, 19-24120 Trieste, Italy
Correspondence: Serena Plazzotta.
E-mail: serena.plazzotta@studenti.units.it

F. LARESE FILON
S. PLAZZOTTA
F. RUI
M. MAURO
P. DE MICHELII
C. NEGRO

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