

Hand dermatitis among medical students from north Queensland, Australia

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Although hand dermatitis (HD) is a frequent occurrence for many health professionals, little is known about the prevalence of HD among medical students, particularly in Australia. A questionnaire-based survey of HD was administered to 261 students at a medical school in tropical northern Australia during 2004 (98.9% response rate). The prevalence of HD varied by year of study, ranging from 9.7% to 20.4% ($P=0.322$), with an overall prevalence of 17.4%. HD prevalence was significantly higher in those with current allergic disease ($P=0.012$). Some students (13.8%) reported a reaction immediately after exposure to latex products, a finding which was associated with higher prevalence of HD ($P=0.001$). HD may be more prevalent among students of a tropical Australian medical school than among their counterparts studied elsewhere. The identification of allergy as a significant correlate again stresses the importance of allergic disease and its relationship with skin conditions.

Key words: Australia; epidemiology; hand dermatitis; medical student; risk factor. © Blackwell Munksgaard 2007.

Accepted for publication 13 September 2006

Hand dermatitis (HD) is a common occupational disease, which may affect between 5% and 10% of the population (1). There is also a high prevalence of HD among health care workers and students (1, 2). Despite this fact, HD among physicians and medical students has not been widely investigated. While some previous research has included physicians as part of a larger survey, their exact prevalence rate for HD was not elucidated (3, 4). Where HD prevalence rates were documented among physicians, it was usually as part of a larger community (5) or hospital survey (6). In 1 study of hospital-based physicians in China, an overall HD prevalence rate of 13% was reported (7). Among medical students specifically, some accounts of dermatitis have been published, although these were usually part of larger surveys targeting latex allergy and atopy (8–10). As such, relatively little is known about the prevalence of HD among medical students, a knowledge shortfall, which warrants further investigation. Given their large and mobile student demographic, the most practical approach for studying HD among medical students is a structured self-reporting questionnaire based on previous studies. Given these considerations, we used a previously validated questionnaire survey (11) to examine

a cross-section of medical students from the first 4 years of an Australian university, to determine the prevalence of HD and its associated factors.

Subjects and Methods

This study involved a cross-sectional epidemiological analysis of HD among all medical students in years 1 to 4 of an Australian university located in tropical north Queensland. Data were gathered prior to commencement of lectures using a self-reporting questionnaire (11). All information were collected anonymously, and informed consent was implied when medical students completed and returned their questionnaires. Our 2-page survey included questions such as age, year of study, previous employment, HD symptoms and the self-reported presence or history of systemic allergies. HD symptoms investigated included red and swollen hands or fingers; dry and cracked hands or fingers; blisters on hands or between the fingers; scaling of hands or fingers; itchy hands or fingers; or any other skin complaint nominated by the respondent. HD was defined when 2 or more symptoms occurred in the past 12 months and had persisted for more than 3 weeks or reoccurred (1, 11). Information regarding

latex allergy symptoms was also requested as previously described (12). Latex allergy symptoms investigated included itching; swelling; skin redness; rhinitis; shortness of breath; or other symptoms nominated by the respondent. Data were analysed using statistical software (13) to establish the prevalence of HD as well as demographic correlates and possible risk factors. Differences in HD prevalence by year of study (P for trend) were evaluated using the chi-square test and 1-way analysis of variance. Risk factors were established using logistic regression and displayed as odds ratios (OR) with 95% confidence intervals (95% CI). P values less than 0.05 were regarded as statistically significant throughout all analyses.

Results and Discussion

We recruited a complete cohort of 261 students from a medical school in tropical north Queensland, Australia, of whom 258 returned their questionnaires (98.9%). HD prevalence was determined by year of study at medical school, using previously defined criteria (11). The prevalence of HD varied by year of study, ranging from 9.7% to 20.4% ($P = 0.322$), with an overall prevalence of 17.4% (see Table 1). Overall, HD prevalence among our medical students (17.4%) was a little higher than that reported in previous studies of HD prevalence among physicians in China (12.9%) (7) and Sweden (13.3%) (5), but comparable with a prior research conducted among Norwegian physicians (17.6%) (6). Although HD prevalence within our medical students appeared to be lower than a recent survey of Japanese physicians (where 25.1% reported contact dermatitis) (14), the response rate of the Japanese survey was only 34.3%, which may have led to incomplete coverage and responder bias. Surveys of allergy

among medical students have shown an 8.4% prevalence of generalised eczema in New Zealand (8) and a prevalence of 7.0% in Sweden (9). The prevalence of self-reported latex allergy symptoms in our medical students (13.8%) was higher than that reported in a study of medical students in a previous British survey (9.6%) (10).

HD was significantly more common among those with a current allergic disease (OR: 11.4, 95% CI: 1.7–106.6, $P = 0.012$) (data not shown). In addition to HD, 13.8% of medical students reported some kind of reaction immediately following contact with latex products, which was significantly associated with a higher prevalence of HD ($P = 0.004$). Female medical students were significantly more likely to report some kind of reaction immediately following contact with latex products ($P = 0.004$), when compared with their male counterparts. Their overall prevalence of symptoms was as follows: itching (10.5%), swelling (0.4%), skin redness (4.7%), rhinitis (0.4%) and other symptoms (2.3%). About three-quarters (73.5%) of all medical students reported having regular exposure to some kind of latex products as part of their studies. As expected, this course-related latex exposure was significantly more likely to occur in the later years of the programme ($P = 0.020$). Those students who reported a current allergic disease also reported having significantly less exposure to latex products as part of their studies ($P = 0.009$).

The association of systemic allergic disease and latex reactions with higher HD prevalence in this present survey was consistent with previous research showing correlations between allergy and HD development in a variety of regions and occupational groups (3, 5, 15). It was also consistent with that reported in surveys of nursing students (16) and nurses at a teaching

Table 1. Demographics, latex allergy, atopy and hand dermatitis among medical students

	1st year ($n = 84$)	2nd year ($n = 62$)	3rd year ($n = 58$)	4th year ($n = 54$)	P value ^a
	n (%)	n (%)	n (%)	n (%)	
Demographics					
Female	50 (59.5)	39 (62.9)	39 (67.2)	30 (55.6)	0.617
Alcohol	44 (52.4)	45 (72.6)	43 (74.1)	38 (70.4)	0.016
Tobacco	7 (8.3)	1 (1.6)	0 (0.0)	1 (1.9)	0.029
Age (years) ^b	18.1 $\pm$ 1.7	19.4 $\pm$ 2.9	20.3 $\pm$ 3.1	22.0 $\pm$ 3.1	<0.001
Allergy and latex					
Current allergy	24 (28.6)	19 (30.7)	25 (43.1)	11 (20.4)	0.039
Childhood allergy	12 (14.3)	9 (14.5)	7 (12.1)	11 (20.4)	0.246
Latex usage	55 (65.5)	52 (83.9)	35 (60.3)	42 (77.8)	0.014
Latex reactions	11 (13.1)	14 (22.6)	7 (12.1)	3 (5.6)	0.061
Hand dermatitis ^c	17 (20.2)	6 (9.7)	11 (19.0)	11 (20.4)	0.322

^a P for trend evaluated using the chi-square test and 1-way analysis of variance.

^bMean $\pm$ standard deviation.

^cHand dermatitis cases defined according to the criteria of Smit et al. (11).

hospital (17) from the same tropical university. This suggests that health care workers and students of all disciplines are at reasonable HD risk, particularly if they suffer from current allergies. Medical schools may need to consider making available non-latex alternatives or avoiding latex products wherever possible, to help reduce the burden of HD and latex allergy among their students. Medical students already suffering from latex allergy and/or HD should be carefully monitored to help reduce the possibility of these diseases interfering with their current studies and future career. Medical faculty may also consider counselling atopic students in preventive techniques, and ideally, introducing HD and latex allergy awareness into the medical curriculum for both students and staff.

Acknowledgements

We are grateful to all the medical students who completed our questionnaire and to the following staff from the School of Medicine, James Cook University, Australia: Dr Tracy Cheffins, Ms Maggie Grant, Dr Gary Hamlin, Professor Richard Hays and Associate Professor John Stokes; for their organisational support. We also thank Dr Frances Leggat for her assistance in data coding and entry.

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