



EDITORIAL

LATEX ALLERGY — TIME TO ADOPT A POWDER-FREE POLICY NATIONWIDE

Since the first case of latex allergy was diagnosed in South Africa in a Cape Town nursing sister in 1993, latex allergy has become a major occupational health hazard for health care workers around the country. New cases are being notified to the Commissioner for Occupational Diseases every week. With medical staff being affected by latex allergy, some are unable to continue in the locations where they normally work. Some key personnel have had to be medically boarded because of the development of latex allergy, putting pressure on the already depleted public health care sector.

The first South African report of 23 cases of confirmed latex allergy at Groote Schuur Hospital was published in this *Journal* in 1997.¹ This pilot study evaluated and documented the safety of skin-prick testing to confirm latex allergy and also evaluated the specificity and sensitivity of *in vitro* laboratory tests for latex allergy. Skin testing was found to confirm the presence of latex allergy in over 90% of cases. The ImmunoCAP RAST was positive in 60% of cases overall and more likely to be positive when latex allergy testing was performed for non-cutaneous symptoms such as asthma, rhinitis and anaphylaxis.

Publication of this report of latex allergy in South Africa led to increased local awareness of the possibility that latex allergy could be accounting for cutaneous and respiratory symptoms experienced by health care workers in the region, and a number of isolated cases were subsequently confirmed in the Eastern Cape, KwaZulu-Natal and Gauteng.

A specific referral clinic for the assessment, diagnosis and management of latex allergy was established at Groote Schuur Hospital in 1997. Since then, over 300 cases have been diagnosed in the Western Cape.

LOCAL RESEARCH FINDINGS

To determine the prevalence of latex allergy systematically at major teaching hospitals in South Africa, five large studies were initiated. The largest, a survey of 2 300 health care workers, has just been completed at Groote Schuur Hospital. Two other studies in the Cape region have been conducted, at Tygerberg Hospital (teaching hospital of the University of Stellenbosch) and at Red Cross War Memorial Children's Hospital. Two more large studies are in progress at Johannesburg General Hospital and McCords Hospital in KwaZulu-Natal.

The study at the Red Cross Children's Hospital, published in this issue of the *Journal* (p. 750), surveyed 302 health care workers, with 146 complaining of one or more allergic symptoms in the workplace. Ten staff members were identified as latex-allergic using skin-prick and CAP RAST tests. Rhinoconjunctivitis was present in 9 of the subjects, urticaria in 6 and asthma in 4. In the study done at Tygerberg Hospital by De Beer *et al.*,² the overall prevalence of latex allergy in individuals working in high-risk areas using gloves was 20.8%. Only one-third of these individuals suspected that they might have latex allergy. Interestingly, in this study, allergy to tropical fruits was confirmed in half of the latex-sensitive individuals.

The large study just completed at Groote Schuur Hospital, reported in this issue of the *Journal* (p. 760) has not only addressed the prevalence of clinical features of latex allergy and cross-activity with food allergies, but has specifically focused on the outcome for affected individuals 6 months or more after the diagnosis of latex allergy. This study confirmed latex sensitisation in 182 of 717 workers who reported allergic symptoms when using powdered gloves or working in high-risk areas in the hospital. The prevalence of sensitisation was found to be 9.2% for the 2 316 hospital workers screened. Latex allergy was found among all classes of health care workers — nurses (54%); doctors (15%); laboratory workers (11%); paramedical staff, including physiotherapists (6%); cleaning staff (6.1%) and administrative personnel (2%). The commonest presenting symptoms were ocular (67%), rhinitis (60%), coughing (29%), wheezing (29%), itchy skin (61%) and urticaria (58%). Of the 717 symptomatic workers, urticaria and wheezing at work correlated significantly ($P = 0.001$) with a positive confirmatory RAST or skin-prick test for latex allergy. Sensitivity to banana and avocado pear was significantly more prevalent in the latex-positive group ($P < 0.001$). Twelve per cent of the sensitised patients reported the development of allergic symptoms when handling equipment other than latex, e.g. rubber tubing, anaesthetic apparatus, catheters and endoscopes. When specifically asked about these activities a further 50% of the patients reported symptoms of allergy when using sporting equipment and other equipment in the home environment, e.g. bicycle handles, gardening gloves, scuba diving equipment, or when blowing up a balloon.

The unique aspect of the Groote Schuur Hospital study has been to assess the outcome of the latex-allergic individuals 6 months or more after their latex allergy had been confirmed and avoidance measures had been implemented.

Avoidance measures included the establishment of powder-free areas in the hospital where the latex-sensitive individuals worked, so that only non-powdered gloves were used in these areas. Affected individuals had to wear non-latex gloves such as neoprene or vinyl, and were counselled about the risks of inadvertent exposure to latex via other rubber-containing



materials in the work and home environment. They were also provided with medication to take should they be inadvertently exposed and develop symptoms, as well as a medic-alert and patient information material including a comprehensive list of latex-alternative materials to use in the work and home environment.

The diagnosis of latex allergy among Groote Schuur staff has had major effects on the ability of many of the staff to continue working as before. Many of the staff have had to be re-located out of their normal working location, e.g. the theatres, until a powder-free working environment could be implemented. Five employees were forced to stop work completely. Of 100 employees followed up for more than 6 months after intervention was instituted, 91 no longer wore latex gloves and 49/100 had a significant reduction in their work-related symptoms. In a further 34 patients symptoms had completely disappeared. In particular there has been a significant reduction in cutaneous ($P < 0.001$) and ocular ($P < 0.001$) symptoms. Nasal and respiratory symptoms have been reduced after intervention; however, this is not statistically significant. A possible reason for the fact that some individuals are still having symptoms despite intervention measures is that the entire hospital has not yet been able to go completely powder-free.

A further study of a group of patients at Groote Schuur Hospital who had persistent nasal symptoms in spite of latex avoidance, has revealed that several of these individuals have had as yet undiagnosed underlying allergies to other inhalant allergens, e.g. housedust mite, grass, cats and dogs, which had not yet been addressed.

In view of the fact that individuals with other allergies and atopy are at greater risk of developing latex allergy in the work environment, it is important that a comprehensive assessment of these individuals be made when latex allergy is diagnosed or investigated to ensure a good result after intervention is instituted.

The finding that between 10% and 20% of hospital staff in the Western Cape are affected by latex allergy in major hospitals poses a major challenge to the health authorities to provide a working environment that is safe for such workers. In terms of the South African Health and Safety Act of 1993,³ the employer is obliged to provide a safe environment for workers.⁴ The most effective way to manage affected individuals and to prevent further sensitisation is to adopt a powder-free policy, as has been recommended in the UK, Canada, Scandinavia and Germany.

It is now well known that latex allergens are airborne and inhaled, and sensitise individuals in a manner analogous to pollen sensitisation when powdered gloves are used on a regular basis in the hospital, particularly when air is recirculated and air conditioning systems are in place. Latex antigens become airborne and reach high levels in hospital

working areas, particularly in theatres and laboratories. Furthermore, not only theatre and laboratory staff are affected, but all individuals are sensitised if latex particles are airborne in other areas and corridors of the hospital.

Highly atopic individuals are more likely to develop symptoms due to latex following latex sensitisation, and as has been illustrated in the Groote Schuur Hospital study, this may affect all classes of health care workers.

GLOVE COST AND QUALITY

One of the reasons why hospitals have been reluctant to adopt a powder-free policy is that gloves which are powder-free have in the past been considerably more expensive, and the prospect of going powder-free has put a further challenge on already cash-strapped hospital budgets, particularly in the public sector.

To meet this challenge several local glove manufacturers have invested in new plants for local latex glove manufacture. This has been a major development in bringing down the price of the latex gloves to levels very close to the prices previously charged for powdered gloves in the region. This development will enable and facilitate administrators of the public and private hospitals to purchase gloves that are safe, and will prevent further sensitisation of new health care workers as they enter the health care sector.

Another way of regulating glove quality is to restrict the amount of permissible protein per gram of glove. In the past, glove manufacturers have produced gloves with very high levels of extractable protein which becomes airborne, particularly when associated with corn starch powder. Internationally, steps have been taken to develop a cut-off value for permissible protein per gram glove. A level of 50 micrograms total protein cut-off per gram glove has been recommended in Europe and America and has been accepted as a requirement for glove purchasing by the Western Cape provincial tender board.

The original specifications for rubber gloves set by the Central Standardisation Committee of the Republic of South Africa in July 1969 (CKS 1822: 1969), required that gloves should not contain any constituents known to be injurious to human skin. This can well be applied to latex proteins. The time has come for hospital authorities to stop paying lip service to the adoption of a powder-free policy. Major private hospitals have taken up this initiative and in several hospitals where the problem of latex allergy has been identified, this policy has become essential. The cost of losing a valuable employee and providing latex-free alternatives and workers' compensation, far outweighs the benefits to be derived from the purchase of what are now relatively inexpensive powder-free gloves.

One problem with powder-free gloves has been that earlier attempts by the local manufacturers to make powder-free



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articles resulted in gloves that were uncomfortable and difficult to put on, and some of these gloves were brittle and tore easily.

Manufacturing and processing techniques have refined significantly over the last 2 years. Currently available gloves which are non-powdered and available for sterile and non-sterile work are extremely comfortable and highly affordable.

CONCLUSION

Once latex proteins are removed from the air of hospital environments, further sensitisation will no longer take place and those individuals who have systemic symptoms following the inhalation of latex proteins will become symptom-free. This will greatly assist management and containment of the problem in the future and is in line with international trends in allergy prevention.

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1. Marais GI, Fletcher JM, Potter PC. *In vivo* and *in vitro* diagnosis of latex allergy at Groote Schuur Hospital. *S Afr Med J* 1997; 87: 1004-1008.
2. De Beer C, Cilliers J, Truter EJ, Potter PC. Latex gloves. More harm than good? *Medical Technology SA* 1999; 13(1): 282-288.
3. South African Government. South African Health and Safety Act No. 85 of 1993. Pretoria: Government Printer, 1993.
4. Potter PC. Latex allergy a major problem in South African hospitals. *Professional Nursing Today* 1998; 2: 223-226.

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