

## The role of shunted hydrocephalus in the development of allergy to latex in patients with spina bifida

To the Editor:

Nieto et al. (J Allergy Clin Immunol 1996;98:501-7) found an association between sensitization to latex and the presence of a cerebrospinal fluid shunting device in patients with spina bifida. Their data show no sensitization in the group without ventricular-peritoneal shunt, whereas in all sensitized patients ( $n = 29$ ) a shunting valve had been implanted after birth.

We can only partially confirm these findings. In our study of latex allergy in 172 patients with spina bifida, we tested 49 patients (20 male; 29 female; age, 2.9 to 36.7 years) without a shunt system. Their conditions were due to meningocele, lipomeningocele, or spina bifida occulta ( $n = 18$ ), which are not associated with hydrocephalus, or to meningomyelocele without an Arnold Chiari malformation ( $n = 17$ ); or they had only a moderate hydrocephalus ( $n = 14$ ). Like Nieto et al., we used the CAP system (Pharmacia, Uppsala, Sweden) for detecting specific IgE antibodies against latex. Values of 0.7 kU/L or greater (class 2) were considered positive.

In the group of 123 patients with shunted hydrocephalus, 63 (51%) had latex antibodies, whereas in the 49 patients without the shunting device only 11 (22.4%) had antibodies, four of them with high values of class 3 to 5. The difference in the prevalence of latex antibodies between patients with and those without shunted hydrocephalus is significant according to chi square test (chi square = 10.68 with Yates' correction,  $p < 0.01$ ). Four of the patients without shunts (CAP classes 2 to 5) had clinical symptoms of latex allergy of various degrees.

Our explanation for this apparent difference in prevalence is that the shunting devices decisively contribute to the repeated surgical procedures as a major cause of development of latex allergy. Patients without shunts not only lack the first implantation of the shunting device but usually also lack the often numerous revisions in which serosal contact with latex antigens occurs.<sup>1</sup> Patients without shunts had significantly fewer operations than patients with shunts (mean, 2.6 vs 7.0; maximum, 9 vs 30;  $p = 0.001$  in Wilcoxon signed-rank test). In the group without shunts, latex-sensitized patients did not significantly differ from nonsensitized patients regarding the number of operations, whereas among the patients with shunts, significantly more operations had been done in the sensitized patients (mean, 8.4 vs 5.6;  $p = 0.002$  in Wilcoxon signed-rank test).

Reinhold Cremer, MD  
Children's Hospital  
Pediatric Clinic  
Amsterdamer Str. 59  
D 50735 Köln  
Germany

## REFERENCE

1. Rihs H-P, Chen Z, Cremer R, Baur X. HLA class II antigens DR4 and DQ8 are associated with allergy to hevein, a major allergen of *Hevea latex*. Tissue Antigens 1997;49:92-5.

1/8/82141

## Reply

To the Editor:

We appreciate the comments of Dr. Cremer on the question raised about the role of ventriculoperitoneal shunt devices in the development of latex allergy in children with spina bifida. None of our 12 patients with spina bifida without a shunt had antibodies against latex, which is significantly different from what happened in patients with a shunt (36% sensitized). Dr. Cremer's patients also showed significant differences in this direction, but because the number of operations was greater in patients with shunts, these differences could be attributed to the number of operations; the shunt would thus be acting as a confounding variable. Our patients with a shunt had undergone operations somewhat more often than those without a shunt (5.3 vs 3), which was close to statistical significance ( $p = 0.08$ ). The remaining variables did not differ between the two groups.

The identification of confounding variables may be achieved through categorization of patients in subgroups or by the use of multivariate tests. In our case a multiple logistic regression analysis selected the "v-p shunt" variable as significant, once the number of operations had been accounted for, identifying that variable as synergistic in addition to information about the number of operations.

Having a shunt has also been associated with the presence of antibodies against ethylene oxide,<sup>1</sup> quite a frequent finding in children with spina bifida. The presence of antipolymer antibodies has been demonstrated in recipients of silicone implants.<sup>2</sup> This, together with the well-known appearance of aseptic meningitis in children with shunts suggests that these silicone devices are not so inert, and they may be causing an immunologic disturbance, which would not be determinant by itself but may be playing an important adjuvant role in the development of sensitization to latex.

Antonio Nieto, MD  
Angel Mazón, MD  
S. of Pediatric Allergy  
Children's Hospital La Fe  
Valencia, Spain

## REFERENCES

1. Pittman T, Kiburz J, Steinhardt G, Krock J, Gabriel K. Ethylene oxide allergy in children with spina bifida. J Allergy Clin Immunol 1995;96:486-8.
2. Tenenbaum SA, Rice JC, Espinoza LR, et al. Use of antipolymer antibody assay in recipients of silicone breast implants. Lancet 1997;349:449-54.

1/8/82142

## Notice of duplicate publication

Two articles were published in *The Journal of Allergy and Clinical Immunology* (Leung R, Thien FCK, Baldo B, Czarny D. Royal jelly-induced asthma and anaphylaxis: clinical characteristics and immunologic correlations. 1995; 96:1004-7) and *Clinical and Experimental Allergy* (Thien FCK, Leung R, Baldo BA, Weiner JA, Plomley R, Czarny D. Asthma and anaphylaxis induced by royal jelly. 1996;26:216-222). The two manuscripts were submitted to the journals within a few days of each other in November 1994. Both manuscripts went through peer review and were revised and