Key points

• An increase in the use of natural rubber latex (NRL), such as in gloves, has been accompanied by an increase in the number of reported severe NRL allergies.

• NRL allergies can be diagnosed with a number of diagnostic techniques but as yet have not been resolved.

• Significant progress has been made toward prevention by employing primary prophylaxis. Secondary or tertiary prophylaxis also allows for safe surgical procedures without symptoms of NRL allergy.

• Many recommendations exist for NRL-free operations, including a document detailing the principles of a latex prophylaxis program published in 1993 by the Task Force on Allergic Reactions to Latex at the American Academy of Allergy and Immunology.

• At the Cologne Children’s Hospital, adopting primary NRL prophylaxis around and during surgery and anaesthesia resulted in none of the spina bifida patients developing NRL sensitization or allergy (after up to seven operations, mean 3.3) after two years of prophylaxis introduction, compared with 38 percent being sensitized against NRL without prophylaxis (after up to eight operations, mean 3.6).1

Background

Better hygienic practices in the late 1980s and 1990s led to increased use of natural rubber latex (NRL) gloves. In parallel, an increase in IgE-mediated allergies to NRL were reported. The findings of this review show that distinguishing between allergy types, identifying risk groups and developing diagnostic methods, coupled with implementing NRL prophylaxis programs, contributes to the reduction of NRL sensitization, even in high-risk groups.
The allergenic potency of these proteins affects different risk groups differently. High-risk groups for these allergies include healthcare workers and patients with multiple-surgery surgeries as well as children with spina bifida. A pre-existing atopy also increases the risk of NRL sensitization2-4.

The way of allergen contact and the type of allergen transmitted influences the symptoms present. Healthcare workers react with urticaria or with conjunctivitis, rhinitis or asthma4, while patients undergoing multiple surgeries often react with anaphylaxis5. The intensity and frequency of NRL contacts does not completely explain the prevalence of NRL sensitization, but on the whole, more frequent contact and number of surgeries for those within the high-risk groups increases the prevalence of NRL sensitization. For example, spina bifida patients experience a sensitization rate of up to 64 percent, which is much higher than other groups who have undergone multiple surgeries4. About 60 different NRL polypeptides are capable of binding human IgE; different risk groups are sensitized by different NRL allergens, making the type and way of contact important in the development of a sensitization and severity of reaction. Likewise, some mainly tropical fruits trigger cross-reactions to NRL.

Several diagnostic procedures exist to identify type I latex allergy; diagnosis should be done when a typical clinical history and type I NRL allergy symptoms appear. Current diagnostic methods include the skin prick test and serologic testing for NRL-specific IgE.

Outcomes: cologne children’s hospital, NRL prophylaxis in spina bifida patients

- In 1995, Cologne Children’s Hospital implemented a primary NRL prophylaxis program around and during surgery and anaesthesia of all spina bifida patients. Discontinued use of NRL-containing gloves and eliminated as much NRL-containing material from the O.R. and pediatric wards as possible.

- Two years after beginning the NRL prophylaxis program, no child born with spina bifida developed NRL sensitization or allergy despite having up to seven operations. Those 38 percent of those without prophylaxis developed NRL sensitization.

- Since introducing prophylaxis in 1995, only one of 15 (6.7 percent) spina bifida patients was sensitized compared to 41.3 percent in 19947.

- Clear conclusion that primary prophylaxis during surgery, anaesthesia and in pediatric wards will reduce the prevalence of NRL sensitization.

Conclusion

Primary latex prophylaxis during surgical procedures and anaesthesia and in pediatric wards has been shown to be successful in reducing the prevalence of NRL sensitization, even in high-risk groups, such as children with spina bifida.

References: