Latex Sensitivity and Allergic Reactions in the Gastroenterology Setting

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Preface

In 1987, when the Center for Disease Control (CDC) issued recommendations for universal precautions, the demand for gloves as one component of personal protective equipment (PPE) escalated dramatically. This increased demand may have temporarily changed manufacturing procedures, resulting in a poor-quality, highly allergic product (Gawchik, 2011). This may have resulted in the development of sensitization in health care workers and patients as a result of exposure and the inhalation of aerosolized latex (Kelly, 2011). In 2008, the FDA released a proposed guidance document entitled “Medical Glove Guidance Manual”, which recommended protein and glove powder limits. With the reduction of latex proteins in gloves and the use of powder-free gloves, the allergen levels in health care workers has declined (Kelly et al., 2011; Power, 2009; Rolland & O’Hehir, 2008). Although latex sensitization has decreased, latex allergy can be a serious problem.

The purpose of this document is to maintain an awareness of the potential dangers of latex to both patients and healthcare workers (HCW).

Definition of Terms

For the purpose of this document, SGNA has adopted the following definitions:

**Allergy** refers to a state of hypersensitivity induced by exposure to a particular antigen (allergen) resulting in harmful immunologic reactions on subsequent exposures.

**Anaphylaxsis** refers to an acute, potentially life-threatening hypersensitivity reaction, involving the release of mediators from mast cells, basophils and recruited inflammatory cells. It is the most severe acute reaction characterized by a combination of respiratory, cardiovascular, and cutaneous signs and symptoms (Huber, 2006).

**Latex** refers to natural rubber latex (NRL) and includes products made from dry natural rubber (Occupational Safety and Health Administration [OSHA], 2008).

**Sensitization** is the process of developing an immunologic reaction to an antigen (OSHA, 2008).

**Sensitivity** refers to a state of altered reactivity that develops after sensitization.

I. General Principles

A. Routes of Exposure

Healthcare workers and patients are at risk of developing latex sensitivity. Major risk factors include length and frequency of exposure and exposure at an early age (Niggermann, 2010; Pfenninger & Fowler, 2011; Pollart, 2009). The routes of exposure are (Al-Shaikh, 2013; Association of periOperative Registered Nurses [AORN], 2012; Gawchik 2011):

a. direct contact (e.g. gloves, face masks, blood pressure cuffs),

b. airborne sources that affect mucous membranes of the eyes, nose, trachea, bronchi and oral cavity,

c. particles swallowed after entering the nose or mouth,

d. direct contact between HCWs’ NRL gloves and patients’ internal tissues during surgical procedures,
e. direct contact between NRL devices and patients’ internal tissues (e.g. wound drains, catheters).

B. Types of Reactions to Latex

Three types of reactions can occur in persons using latex products: Irritant Contact Dermatitis, Allergic Contact Dermatitis, and Latex Allergy.

1. **Irritant Contact Dermatitis (Contact dermatitis)**
   The most common reaction to latex products is *irritant contact dermatitis*. This is exhibited by the development of dry, itchy, irritated areas on the skin, usually the hands, and is not a true allergy (Grota et al., 2014, National Institute for Occupational Safety and Health [NIOSH], 2012; OSHA, 2008). It may occur on the first exposure and is not life threatening (Gawchik, 2011).

2. **Allergic Contact Dermatitis (Delayed Hypersensitivity or Type IV)**
   Allergic Contact Dermatitis or delayed hypersensitivity (Type IV) results from exposure to chemicals added during manufacturing. Erythema, pruritus and blisters usually occur 24 to 96 hours after contact (Al-Shaikh, 2013; Gawchik, 2011; OSHA, 2008; NIOSH, 2012).

3. **Latex Allergy (Immediate Hypersensitivity or Type I)**
   True latex allergy (Type I) is more serious than either of the two preceding conditions and should be further evaluated as it could lead to anaphylactic reactions. It is unknown how much exposure to the proteins in latex is needed to cause sensitization or progression of symptoms. Reactions usually begin within minutes of exposure to latex, but they can occur hours later. Mild reactions involve skin redness, hives or itching. Serious symptoms include runny nose, sneezing, itchy eyes, scratchy throat, wheezing, coughing or difficulty breathing (Al-Shaikh, 2013; Kumar, 2012; NIOSH, 2012; OSHA, 2008) Progression to anaphylactic shock is rare and life threatening but is seldom the first sign of sensitivity (NIOSH, 2012).


Individuals who are at a higher risk of developing a latex allergy include those with:

1. prolonged or ongoing exposure to latex,
2. genetic predisposition to hypersensitivity or allergic reaction (atopy),
3. allergies to certain foods especially avocado, chestnuts, kiwi fruit, and bananas,
4. spina bifida,
5. a history of multiple surgical procedures.

E. Assessment and documentation

There is no standardized testing protocol for diagnosing latex allergy (Huber, 2006; Pollart, 2009). Medical diagnosis is based the correlation of symptoms with latex exposure (Gawchik, 2011; Pfenninger & Fowler, 2011). Therefore, it is essential to take a thorough history to be aware of potential or actual latex allergy. A history should include evidence of seasonal allergic rhinitis, asthma, eczema and food allergy, occupation, and surgeries, and hidden reactions such as swelling of lip or tongue after blowing up a balloon (Gawchik, 2011; Pfenninger & Fowler, 2011).
II. Recommendations

The following recommendations for preventing latex allergy in the workplace are based on current knowledge and a common-sense approach to minimizing latex-related health problems (Kumar, 2012; OSHA, 2008; NIOSH, 2012).

1. Assess patients for possible latex sensitivity allergy.
2. Reduce latex exposure by using latex-free products, when available.
3. Provide a latex free environment for individuals with known latex allergy.
4. Be aware of products that contain latex and whether latex free alternatives are available (e.g. EUS balloons, extraction balloons for biliary stones, and variceal bands).
5. Educate staff about latex sensitivity including incidence, risk factors, and identification.
6. Refer to institutional policies and procedures for specific information on the care of patients with latex sensitivities.

Summary

Latex avoidance measures have a positive impact on preventing latex sensitization (Pfenninger & Fowler, 2011). HCWs are responsible for providing a safe environment by utilizing latex free products whenever available and being cognizant of the latex contents in patient care products and PPE.

References


Niggermann, B. (2010). IgE-mediated latex allergy-An exciting and instructive piece of allergy history. Pediatric Allergy and Immunology. 21, 997-1001.


**Recommended Reading:**


