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Over 90% of natural rubber comes from the latex, or the milky sap, of the rubber tree, Hevea brasiliensis. Latex can cause reactions ranging from rashes to anaphylaxis. Latex is ubiquitous in healthcare. It is most commonly used in medical and surgical gloves and also in catheters, balloons, IV tubing, respirators, other medical and dental devices, and condoms. Latex allergy is among the most common causes of anaphylaxis in the operating room. Natural latex rubber is also found in other products such as toys, erasers, sports equipment, clothing, and elastic bands. A positive latex prick test Latex protein rather than the rubber accelerators in a rare type IV allergen An immediate type 1 reaction after exposure to a rubber balloon; the cheeks and lids have swollen in the last 10 minutes Who gets latex allergy? Anyone who is exposed to latex is at risk of becoming sensitised; fortunately, the majority of people do not. Risk factors include: Occupational eg, rubber-industry workers, healthcare workers (from frequent use of latex gloves), housekeepers, hairdressers Use of catheters and other latex devices for congenital urinary anomalies eg, children with spina bifida Multiple medical/surgical procedures History of non-medication-related anaphylactic reactions during anaesthesia History of food sensitivities such as banana, avocado, chestnut, tomato, peach, or kiwifruit An atopic predisposition. The prevalence of latex allergy in the general population has been estimated at approximately 4.3%. However, in high-risk populations increased prevalence has been reported eg, around 9.7–12.4% in healthcare workers, and up to 40–65% in paediatric spina bifida patients. What causes latex allergy? For reasons not yet understood, some people can become allergic to certain constituents of the latex molecule. Once allergic, sensitivity remains lifelong. There are hundreds of different chemicals within natural latex, but 15 are thought to be responsible for most reactions (Hev b1 to Hev b15). Latex reactions can be triggered by several modes of exposure, including: Direct contact with the skin Entrance through mucous membranes Parenteral Intravenous Inhalation (of latex powder). The surge in demand for latex gloves in the 1980s, driven by new recommendations for use amid the HIV epidemic, led to shortcuts in product cleansing during manufacturing, resulting in gloves with higher allergenic potential. A true latex allergy will result in a type I hypersensitivity reaction mediated by IgE antibodies that bind to the allergenic latex proteins. The binding triggers mast cells and basophils to release histamine, leukotrienes, prostaglandins, and kinins, resulting in an immune response. During latex processing, chemical antioxidants are added, which can also cause delayed type IV hypersensitivity reactions (such as thurams, and carbamates). True type IV allergy to latex is reported but much less common than type I reactions See also: Allergies explained. What are the clinical features of latex allergy? The common manifestations of latex sensitivity are: A type I (immediate-type hypersensitivity) reaction — can cause contact urticaria (hives) and asthma; and more rarely, anaphylaxis A type IV (delayed-type hypersensitivity) reaction resulting in contact dermatitis. Type I reactions Immediate-type hypersensitivity requires previous sensitisation and is the most potentially dangerous reaction to latex. Clinical presentations vary but may include contact urticaria, coryza, conjunctivitis, stinging or burning, asthma, or (with mucosal or parenteral exposure) anaphylaxis. A common cause for asthmatic reactions is powdered gloves due to starch powder picking up latex proteins. Contact urticaria usually presents with pruritus (itching) and swelling of the skin at the site of contact with latex, for example on the hands from wearing gloves or on the genitals from condom use. Symptoms usually start within 5–15 minutes after contact with the latex product, although onset can be delayed for several hours. Symptoms may continue for hours to days after the latex contact has ceased. Type IV reactions Contact dermatitis from latex may take several days to appear. It presents with an itchy, scaly rash, and there may be small blisters if the reaction is acute. The rash usually lasts several days to weeks, or longer if exposure to latex continues. Contact dermatitis is not generally caused by sensitivity to latex proteins but rather to the chemicals used in the manufacture of the latex product, including antioxidants and rubber accelerators thiuram, carbamates, and mercaptobenzothiazole. How do clinical features vary in differing types of skin? It is currently not known if latex allergy is more prevalent in people with lighter or darker skin types. Allergic contact dermatitis can appear red in some skin types. In darker skin, erythema may be less evident, and affected skin may appear purple or darker than the surrounding skin instead. What are the complications of latex allergy? Severe clinical manifestations include bronchospasm, hypotension, cardiorespiratory collapse, and shock. Anaphylactic shock is potentially fatal and occurs most commonly in an intraoperative context. Patients who have had frequent exposure to latex have a higher risk of sensitisation and anaphylaxis. How is latex allergy diagnosed? In most cases, a diagnosis of latex allergy can be made from an accurate history and clinical examination. History-taking should include questions about: Reactions or complications during surgical procedures or dental work, other symptoms such as rash or wheeze on exposure to latex (balloon inflation-induced rash and wheeze is a common symptom) History of atopy Food allergies (especially certain fruits eg, banana and kiwifruit). There are a number of tests that can confirm latex sensitivity, including: Ensure patients are informed when they have had a suspected latex-related allergic reaction, and recommend referral for consideration of latex allergy testing. What is the differential diagnosis for latex allergy? Irritant contact dermatitis can present similarly to a latex allergy, although it is actually a non-immunologic reaction where friction or contact with chemicals results in irritated skin. When immediate reactions occur in settings where latex exposure has occurred, consider that it may be an allergen other than latex that is the responsible culprit. What is the treatment for latex allergy? General measures Patients with latex allergy Healthcare services should offer a latex-safe environment to patients with known latex allergy. No-one in the area should wear powdered natural rubber gloves. Non-latex gloves should be used to directly examine the patient. Do not inject or withdraw fluid through rubber ports or intravenous lines. All-natural rubber latex products that routinely (directly or indirectly) come into contact with mucosa, non-intact skin, and internal bodily spaces (eg, catheters, endotracheal tubes) should be removed or made latex-safe (eg, by covering: blood pressure cuffs used over clothing, stethoscope tubing covered with stockinette). Products made of dry-moulded rubber (eg, wheelchair tyres, tool handles) do not need to be removed from the area but precautions should be taken to minimise direct exposure by covering the object or body part exposed (eg, having the patient wear non-latex gloves while self-wheeling a wheelchair). Latex-safe meals: avoid foods known to cross-react with antibodies to natural rubber latex (eg, avocado, banana, potato, tomato, papaya, chestnut, or kiwifruit). Non-latex safe operating rooms: if unavailable, patients should be scheduled as the first procedure of the day to reduce the build-up of latex allergens. Latex allergy should be added in patients' clinical notes and a medical alert bracelet may be recommended. Each ward/department should consider who is likely to be high risk and develop an emergency kit of latex-free products for use. The equipment required will vary and will need to be identified by the clinical area. Healthcare workers with latex allergy Employers should be aware of the latex allergy so that necessary measures can be taken. Avoid contact with latex gloves and products. Commonly used latex medical products: rubber gloves; elastic bandages; adhesive tape; urinary catheters; electrode pads; wound drains; stomach and intestinal tubes; urinary collection devices; protective sheets; enema tubing and tips; dental cofferdams; rubber pads; and fluid circulating warming blankets. Equipment containing latex includes: haemodialysis and anaesthesia equipment; rubber masks; electrode pads; head straps; rubber tourniquets; rubber nasal-pharyngeal airways; rubber oral-pharyngeal airways; teeth protectors; bite blocks; blood pressure cuffs; rubber breathing circuits; reservoir breathing bags; rubber ventilator hoses and bellows; rubber endotracheal tubes; latex cuffs on plastic tracheal tubes; latex injection ports on intravenous tubing; and certain epidural catheter injection adaptors. Other suggested measures Avoid areas where powder may be inhaled from latex gloves worn by other workers. Tell your employer that you have a latex allergy. Wear a medical alert bracelet. Consult with your doctor to determine whether you should carry auto-injectable adrenaline (epinephrine) in case of accidental latex exposure and anaphylactic shock. Specific measures If a reaction occurs, identify and remove the source of the latex exposure. Management of exposed and symptomatic individuals depends on the type of reaction, and may involve: How do you prevent latex allergy? Workers in high-risk occupations such as healthcare can help prevent latex sensitivity by: Using appropriate work practices to reduce the chance of reactions to latex Wearing nitrile or polyurethane gloves where practical; if wearing latex gloves, choose non-powdered options -Using only approved barrier cream if wearing latex gloves, as some creams (eg, oil-based products) can lead to glove deterioration and increase the chance of a reaction Washing and drying hands thoroughly after removing latex gloves Practicing good housekeeping: frequently clean areas and equipment contaminated with latex-containing dust Exercising care when removing latex gloves to reduce the risk of exposure of latex allergens to self and/or colleagues. For those sensitised to latex, education is crucial for the prevention and early management of allergic reactions, including: Information regarding foods likely to cause cross-reactions with latex sensitivity and any products that contain latex The importance of notifying healthcare providers about the latex allergy and requesting a latex-safe environment Learning to recognise the symptoms of latex allergy: skin rash; urticaria; flushing; itching; nasal, eye, or sinus symptoms; asthma; and (rarely) shock Consideration of a medical alert bracelet and self-injectable adrenaline as appropriate. What is the outcome for latex allergy? There is currently no cure for latex allergy. Education on products containing latex and safe alternatives is important for avoidance. It is also essential for patients with a latex allergy to let healthcare providers know, to enable provision of a latex-safe environment. Some people with Type 1 (immediate) latex allergy also react to certain fruits and vegetables, including banana, avocado, tomato, potato, kiwi, chestnut, lychee, papaya, passion fruit, fig, melon, mango, pineapple, peach and lettuce. This is known as cross-reactivity, where the proteins in latex have a similar structure to the proteins in these foods. If you are allergic to any of these foods, you may also be allergic to latex, and vice versa. Symptoms normally affect the mouth after eating the food and are usually mild. They can include tingling or itching in the lips, tongue or throat. More serious reactions can occur, so discuss this with your doctor. You can also discuss which foods might cause you a problem. Raw potatoes can cause contact reactions when people with latex allergy peel potatoes, but cooked potato is not usually a problem. Not everyone with latex allergy has latex-food syndrome, and most people with latex-food syndrome will only react to a small number of foods. A latex allergy is when your body’s immune system overreacts to certain kinds of proteins found in natural rubber latex that’s used to make things like rubber gloves, condoms, and some medical devices.Doctors don’t know what causes it. Coming in contact with latex and rubber products over and over may be part of the reason it happens.About 5% to 10% of health care workers have some form of latex allergy.Other people who are more likely than most people to get it include those who have:A defect in their bone marrow cellsA deformed bladder or urinary tractHad more than one operationA urinary catheter, which has a rubber tipAllergy, asthma, or eczemaSpina bifidaFood allergies to apples, bananas, carrots, celery, chestnuts, kiwi, melons, papayas, raw potatoes, avocadoes, pineapple, and tomatoesRubber industry workers and people who use condoms are also more likely than others to get a latex allergy.You can get exposed to latex:Through the skin, such as when you wear latex glovesThrough mucous membranes, such as the eyes, mouth, vagina, and rectumThrough inhalation. Rubber gloves can contain cornstarch powder, which absorbs the latex and can become airborne when the gloves are removed.Through the blood. This can happen when some medical devices containing rubber are used.There are three types of latex reactions:1. Irritant contact dermatitis. This is the least-threatening type, and it’s not an allergic skin reaction. It usually happens due to repeated exposure to chemicals in latex gloves and leads to dryness, itching, burning, scaling, and skin problems. This generally starts 12-24 hours after contact.2. Allergic contact dermatitis. This is a delayed reaction to additives used in latex processing. It results in the same type of reactions as irritant contact dermatitis. But the reaction is more severe, spreads to more parts of the body, and lasts longer. Symptoms can start anywhere from 1 to 4 days after you've come in contact with latex. 3. Immediate allergic reaction (latex hypersensitivity). This one is the most serious. It can show up as a nasal allergy with hay fever-like symptoms, conjunctivitis (pinkeye), cramps, hives, and severe itching. It’s rare, but symptoms may also include rapid heartbeat, tremors, chest pain, trouble breathing, low blood pressure, or anaphylaxis, a severe allergic reaction that can be life-threatening.If you have severe symptoms, call your doctor or 911 immediately, or go to the nearest emergency room.Doctors diagnose a latex allergy in people who:Have had symptoms of an allergic reaction -- like a skin rash, hives, eye tearing or irritation, wheezing, itching, or trouble breathing -- when exposed to latex or a natural rubber productAre known to be at risk for a latex allergy and blood or skin tests show that they have it, even if they haven’t had symptoms.If you need a skin test to check on a latex allergy, an allergy specialist must supervise it, in case you have a severe reaction.There’s no cure for a latex allergy. If you’re allergic to latex, the best course of action is to avoid contact with it. If you do have a reaction, the treatment will depend on how serious it is. For irritated skin, these may be enough:If your reaction is severe, you may need these right away:EpinephrineIV fluidsWatchful care from medical professionalsIf you have a latex allergy, wear a medical alert bracelet or another type of ID in case of an emergency. You may also need to carry two epinephrine shots if your doctor recommends that.An allergy to latex can become worse the more you come in contact with it. If you know you have this condition, be aware of products that may have the potential to cause a reaction. Ask your doctor if you need to avoid them.Many items have latex in them. Read product labels carefully. You may need to ask product makers to be sure. Home goods that are made with latex include:Rubber sink stoppers and sink matsGloves for dishwashing and household cleaningRubber or rubber-grip utensilsRubber electrical cords or water hosesBath mats and floor rugs that have rubber backingToothbrushes with rubber grips or handlesRubber tub toysSanitary napkins (that contain rubber)Condoms and diaphragmsDiapers that contain rubberAdult undergarments that contain rubberWaterproof bed pads containing rubberUndergarments, socks, and other clothing with elastic bands that contain rubberAdhesives such as glue, paste, art supplies, glue pensOlder Barbie dolls and other dolls that are made of rubberRubber bands, mouse and keyboard cords, desktop and chair pads, rubber stampsMouse and wrist pads containing rubberKeyboards and calculators with rubber keys or switchesPens with comfort grip or any rubber coatingRemote controllers for TVs or recording devices with rubber grips or keysCamera, telescope, or binocular eyepiecesBathing caps and elastic in bathing suitsSome rain boots and raincoats Outside the home, latex is also in many items, such as:Grocery store checkout beltsRestaurants where workers use latex gloves to prepare foodSome balloonsCar races that give off tire and rubber particlesATM machine buttons made of rubberGloves worn by beauty salon workersMedical products containing latex include:TourniquetsBlood pressure padsEKG padsStethoscopesIV tubingSome adhesive bandagesDental devicesTell them about your latex allergy at least 24 hours before your appointment. The hospital or doctor's office should have a plan in place so they can use products like nonlatex gloves to treat you.Ask for the first appointment in the morning. Even if your doctor or dentist uses latex-free gloves for you, there can be latex particles in the air from gloves used with other patients. You're more likely to avoid these particles by getting there early.If you have to stay in the hospital, you'll usually be given your own room, free of products that might give you a reaction.Between 30% and 50% of people who have a latex allergy also have reactions to eating, touching, or even smelling certain foods. This happens because some fruits and vegetables have proteins that are structured a lot like the ones that cause the reaction to latex. It’s called a cross-reaction.These foods include:AvocadoBananaCeleryCherryChestnutFigGrapeHazelnutKiwiMelonNectarinePapayaPeachPineapplePlumPotatoRyeStrawberriesTomatoWheatAlmonds, peppermint, and mustard can also cause cross-reactions.If you’re allergic to any of these foods, you may also have a latex allergy, even if you don’t know it. Let your doctor and dentist know so they can keep from exposing you. Latex comes from the sap of the tropical rubber tree (Hevea Brasiliensis). The sap is processed and used in many products we use every day.Some people are allergic to the protein in latex which is the substance that makes latex so elastic. Therefore, products which are stretchy, like balloons and gloves, are more likely to cause an allergic reaction than products which are solid, like car tyres. Coming into contact with tiny amounts of the latex protein causes the body to have an allergic reaction. The symptoms vary from person to person. People with a latex allergy can develop symptoms immediately after being in contact with latex. However, some people have a delayed reaction which is more likely to be an itchy rash. These people are more likely to be allergic to other substances in rubber production rather than the latex itself.The degree of allergic reaction varies from person to person. Some people may have a mild reaction to latex, which might include itchy eyes, sneezing or a runny nose, or an itchy rash, while other people may have a severe allergic reaction called anaphylaxis. A person is likely to be allergic to latex if they have a reaction occurring within half an hour of coming into contact with latex. Your doctor will probably confirm this using a skin prick test or a blood test which examines the number of antibodies in a small sample of blood. Anyone can develop an allergy to latex, but it is more common in people who are exposed to latex regularly.It would seem that people with hay fever who are also in contact with latex regularly have an even higher risk of developing an allergy to latex.People who are in contact with latex products on a regular basis include health care workers, people who work in the rubber industry and people who have had a lot of operations, especially during childhood.People with spina bifida and problems with their urinary system are also at a higher risk of developing latex allergy due to the number of medical products containing latex they use to manage their condition.People who are allergic to certain foods may also be at risk of developing latex allergy. These foods include: bananas, avocados, kiwi fruit, mangoes, chestnuts, potatoes and tomatoes. These particular foods contain similar proteins to those found in latex. The actual number of people with latex allergy in the UK is not known, but is growing. Studies here suggest that about 40 per cent of patients at Great Ormond Street Hospital (GOSH) have antibodies to latex, especially children with spina bifida or children who undergo multiple operations.Our research suggests that up to half of the remaining patients are at risk of reactions to latex. More people are being exposed to latex proteins which may explain the increase. In the general population, up to five per cent of people are believed to have an allergy to latex although, as they do not show any symptoms, they are probably unaware. There is no cure for latex allergy as unfortunately, at present, it is not possible to desensitise people with latex allergy. People with latex allergy should avoid products containing latex. This will prevent their symptoms getting any worse. There are many lists of products containing latex available but as a general guide, you should try to avoid:latex or rubber dummies and baby bottle teatsrubber stretching toysballoonsrubber bandsadhesive tape and bandages (not all types necessarily)condomsother items such as carpet backing, some shower curtains, window insulation and clothing elasticsIn most cases, there are alternative products you can use. Latex balloons are banned at GOSH, but foil balloons are fine for a child with latex allergy. All wards and departments at GOSH now use latex-free gloves. Latex-free condoms are widely available in most chemists.If you are allergic to latex, it is important that you wear a MedicAlert® bracelet or necklace. These are pieces of jewellery containing a telephone number which any doctor can ring to find out about your medical conditions. This avoids you being mistakenly treated using products containing latex. Your medical records at GOSH, your local hospital, your dentist and your family doctor (GP) should also have a sticker on the front saying you are allergic to latex.If you are highly allergic to latex, it may be worth carrying a set of sterile latex-free gloves, especially if you are travelling away from home. Hospitals and doctors in the UK are becoming more aware of latex allergy, but unfortunately the same may not be true of healthcare abroad.If you suffer severe reactions to latex, that is, anaphylaxis, a doctor may recommend for you to always carry a preloaded epinephrine syringe. If the suggestions above are followed, there is no reason why someone with latex allergy should not have a full and enjoyable life. The Theatres Department in collaboration with the Child and Family Information Group Latex allergy symptoms include:Itching.Redness.Swelling under your skin (angioedema).Rash or hives.Runny nose.Sneezing.Itchy, watery eyes.Wheezing.Difficulty breathing or swallowing.How long does it take for symptoms of a latex allergy to start?Allergic reactions can start within a few minutes of exposure to latex or show up a few hours later. Contact dermatitis symptoms can start within a day or two of contact with latex. You might not have symptoms the first time you come into contact with latex — you can develop the allergy over time. It can also get more severe with each exposure.How do you know if you’re allergic to latex?A healthcare provider can diagnose you with a latex allergy, but you might suspect you have one if you have a reaction after you’ve been in contact with latex. This could include:You have allergy symptoms, like runny nose, itchy eyes or wheezing after touching or being exposed to latex products.Your lips itch after blowing up a latex balloon.You get a rash, hives or other skin irritation on your hands when you wear latex gloves.You get a rash, hives or other skin irritation after someone who’s wearing latex gloves examines you.During or after sex using a latex condom, your genitals, hands, mouth or other areas that touched the condom are irritated, itchy or swollen. Keep in mind that spermicide, lubricant and semen can also cause reactions.What causes a latex allergy?Latex allergies happen when your immune system thinks latex proteins are harmful and then tries to get rid of them. Exposure to latex can cause your immune system to make IgE (immunoglobulin E) antibodies. Antibodies help your immune system identify harmful substances and help get rid of them. Your immune system sometimes mistakenly thinks pollen and other substances — like latex proteins — are harmful. It makes antibodies to recognize and label them for other immune cells to get rid of.Once your body makes IgE antibodies, they attach to immune cells and look for harmful substances. When you come in contact with latex again, IgE antibodies recognize the protein and alert your immune system to flush it out by releasing a chemical called histamine. Histamine opens up your blood vessels and causes inflammation, leading to symptoms of an allergic reaction, including hives, runny nose and trouble breathing. In contact dermatitis, other types of immune cells cause inflammation in your skin.An allergic reaction to latex can happen when you touch or come into contact with latex products. Breathing in tiny latex particles from the air can also sometimes cause a reaction. You may not have a reaction the first time you’re exposed to latex. With each exposure, your allergic reactions can get worse.What are the risk factors for a latex allergy?Anyone can develop a latex allergy, but some people are at higher risk. You might be at higher risk for developing a latex allergy if you have:Occupational exposure to latex. Frequent contact with latex can cause your body to become sensitized to it. People who regularly wear latex gloves are more likely to develop an allergy to it. If you work in healthcare, dental care, veterinary medicine, hairdressing or food preparation, you might be at increased risk for a latex allergy.Frequent surgical procedures. Children and adults who’ve had multiple surgeries have an increased risk of developing a latex allergy. Children with spina bifida are especially likely to have a latex allergy because they often undergo multiple medical procedures at a young age. Medical supplies for these procedures (including catheters and gloves) often contain latex.Food allergies. People who are allergic to latex may also be allergic to certain foods, including bananas, kiwis, avocados and chestnuts. The connection between latex allergies and food allergies is called latex-food syndrome.How common is latex allergy?Less than 1 in 100 people (1%) are allergic to latex. It’s more common in healthcare workers or people with other risk factors.What are the complications of latex allergy?Severe allergic reactions to latex can lead to anaphylaxis, a severe swelling that can close off your airways and drop your blood pressure to dangerously low levels (shock). Medical conditionLatex allergyLatex medical gloveSpecialtyImmunology Latex allergy is a medical term encompassing a range of allergic reactions to the proteins present in natural rubber latex.[1] It generally develops after repeated exposure to products containing natural rubber latex. When latex-containing medical devices or supplies come in contact with mucous membranes, the membranes may absorb latex proteins. In some susceptible people, the immune system produces antibodies that react immunologically with these antigenic proteins.[2] Many items contain or are made from natural rubber, including shoe soles, pen grips, hot water bottles, elastic bands, rubber gloves, condoms, baby-bottle nipples, and balloons; consequently, there are many possible routes of exposure that may trigger a reaction. People with latex allergies may also have or develop allergic reactions to some fruits, such as bananas.[3] Allergic reactions to latex range from Type I hypersensitivity, the most serious form of reaction, to Type IV hypersensitivity.[4] Rate of onset is directly proportional to the degree of allergy: Type I responses will begin showing symptoms within minutes of exposure to latex, while Type IV responses may take hours or days to appear.[5] Most commonly, latex allergy presents with hives at the point of contact, followed by rhinitis. The most common physiological reaction to latex exposure is dermatitis at the point of contact, which gives way to soreness, itching, and redness. Angioedema is also a common response to oral, vaginal, or rectal contact.[6] Symptoms of more severe hypersensitivity include both local and generalized hives; feelings of faintness or impending doom; angioedema; nausea and vomiting; abdominal cramps; rhinitis; bronchospasm; and anaphylaxis. Type IV responses typically include erythema, blistering (forming vesicles and papules), itching, and crusting at the point of contact.[7] This irritant contact dermatitis is considered a nonimmune reaction to latex.[8] The degree of reaction is directly proportional to the duration of exposure, as well as skin temperature. Among those with a latex allergy, 40% will experience irritant contact dermatitis; 33.1% will experience a Type I allergic reaction; 20.4% will experience Type IV allergic contact dermatitis; and 6.5% will experience both Type I and Type IV symptoms.[9] Central line with latex cap The prevalence of latex allergy is greater in certain populations with increased exposure and has historically been studied in this context. [10] Specifically, regular and prolonged occupational exposure to latex is a known risk factor for the development of an allergy. [11] Healthcare workers, dental specialists, food service workers, cosmetologists, rubber industry workers, law enforcement personnel, and painters are among some of the highest-risk occupations.[11] It is estimated that the worldwide prevalence of latex allergy in healthcare workers is 9.7%-12.4%.[10] Latex allergy became a more common problem in healthcare in the 1980s and 1990s with the adoption of universal precautions, which involved frequent use of latex gloves, with the emergence of HIV/AIDs.[10] The rates of latex allergy dropped to 4-7% in the healthcare setting with the widespread introduction of non-powdered latex gloves.[12] On December 19, 2016, the FDA officially banned the use of powdered gloves in the US healthcare setting, citing the unnecessary burden of potential injury due to allergy. [13] General latex avoidance protocols have been put in to place in healthcare settings in the US and many other developed countries with the switch to nitrile gloves.[11][12] However, latex exposure in healthcare settings in developing countries from latex gloves or latex components of medical devices such as urinary catheters, dialysis ports, or vial stoppers, remains a significant concern.[11][12] While most reported allergic reactions to latex have occurred in medical settings, non-healthcare workers show similar levels of latex antibodies, suggesting that they are sensitized to natural rubber latex through other sources, both inside the home and as medical patients.[14] In particular, individuals with chronic health concerns that lead to repeated surgeries or catheterizations thus experience greater exposure to latex allergens and may develop an allergy.[15] Outside of hospital environments, latex allergy may develop in amateur and professional athletes whose sports equipment includes natural rubber, such as swimsuits or running shoes. Rubber basketballs, in particular, may lead to contact dermatitis on the hands and fingertips.[16] The sensitization to latex in athletes may be accelerated by the use of topical analgesics and other agents that diminish the skin barrier and increase contact.[17] It has also been hypothesized that young children may develop a latex allergy due to exposure in the home and school environment from objects such as rubber balloons, boots, gloves, and toys.[18][19] People with spina bifida often have latex allergies. Up to 68% of children with this condition will have a reaction to latex.[20] The mechanism of this association between spina bifida and latex allergy is not clearly defined. However, spina bifida patients may become sensitized to latex early in life as they often require frequent surgeries and medical procedures that involve exposure to latex products. [21] The most important latex allergens which senstize spina bifida patients are: Hev b 1, Her b 3 and Hev b 6.01.[22] People who have latex allergy also may have or develop an allergic response to some plants and/or products of these plants (such as fruits). This is known as latex-fruit syndrome (LFS).[23] This syndrome was described for the first time by Bianco et. al in 1994. Recent review by Gromek published in 2024, have summarised the last 30 years of research on LFS and analyzed 14 original studies.The analysis of original studies demonstrated a significant variability in the prevalence of latex-fruit syndrome (LFS), ranging from 4% to 88%. This variation was attributed to the use of diverse diagnostic tools, differences in geographical regions, and the size of study populations. The most commonly reported allergenic fruits among patients with LFS were banana, avocado, kiwifruit, and papaya.[22] The primary latex allergens implicated in latex-fruit syndrome (LFS) include Hev b 2, Hev b 6.02, Hev b 7, Hev b 8, and Hev b 12. Genetic studies have suggested an association between LFS and specific human leukocyte antigen (HLA) types, particularly HLA-DQB1*0201, DRB1*0301, DRB1*0901, and the HLA-DR functional group E.[24] One group of allergens that may contribute to the cross-reactivity between latex and certain fruits is chitinases. These enzymes catalyze the breakdown of β-1,4-N-acetyl-D-glucosamine bonds in chitin, a polymer widely found in nature. Chitinases are produced by various organisms, including bacteria, fungi, insects, plants, and vertebrates. Class I chitinases identified in fruits such as bananas (Mus a 2) and avocados (Pers a 1) have been shown to cross-react with class I chitinases in latex, specifically Hev b 6.01 (Prohevein) and Hev b 6.02 (Hevein). Chitinases have also been found in other fruits, including chestnut (class I), tomato (class II), Indian jujube (class III), raspberry (class III), and grape (class IV). However, in the case of kiwi and papaya, no specific allergens with chitinase activity have been identified to date. Other latex allergens involved in cross-reactivity with fruits may include profilins, glucanases, and non-specific lipid transfer proteins (nsLTPs). Natural rubber latex contains several conformational epitopes located on several enzymes such as Hev b 1,[25] Hev b 2,[26] Hev b 4,[27] Hev b 5[28] and Hev b 6.02.[29][30] Evaluation of hypersensitivity symptoms revealed that systemic allergic reactions accounted for 73% of reported cases, while only 27% presented with localized allergic manifestations. FITkit is a latex allergen testing method for quantification of the major natural rubber latex specific allergens: Hev b 1, Hev b 3, Hev b 5, and Hev b 6.02.[31] The most effective form of primary prevention towards latex sensitization is limiting or completely avoiding contact with latex, particularly among children with risk factors such as spina bifida.[32][33] The limitation of powdered latex glove use in hospital settings has also proven an effective primary prevention strategy among adult health care workers,[34] and as secondary prevention for sensitized individuals.[35][36] Latex allergy is uncommon in the general population, at least compared to high-risk groups such as hospital workers and spina bifida patients. Estimates suggest a worldwide prevalence of around 4.3% among the general population.[37] Between 1% and 6% of the general population in the United States has latex allergy; assays of antibody levels in the blood suggest that 2.7 million to 16 million Americans are affected by some form of latex sensitivity.[38] Females are approximately three times as likely as males to have latex allergies.[39] Possible risk factors for the female population include increased employment in high-risk occupations and enhanced histamine release caused by female hormones.[40] Alternatives to latex include: Synthetic rubbers (such as elastane, neoprene, nitrile) and artificially synthesized polyisoprene latex, which do not contain the proteins from the Hevea brasiliensis tree.[41] Products made from guayule natural rubber emulsions, which also do not contain the proteins from the Hevea rubber tree, and do not cause allergy in persons sensitized to Hevea proteins.[20][42][43] Alternative materials like Vytex Natural Rubber Latex which reduce exposure to latex allergens while otherwise retaining the properties of natural rubber; these are made using chemical treatment to reduce the amount of antigenic proteins in Hevea latex. Polyurethane. The first polyurethane condoms, designed for people with latex allergies, were produced in 1994. Some people are so sensitive that they may still have a reaction to replacement products made from alternative materials. This can occur when the alternative products are manufactured in the same facility as latex-containing products, leaving trace quantities of natural rubber latex on the non-latex products.[43] Food allergy Food intolerance List of allergies Oral allergy syndrome ^ "Safety and Health Topics | Latex Allergy". Osha.gov. Retrieved 2014-07-31. ^ "Allergy to Latex Rubber". American Dental Association. ^ Taylor, J.S. & Erkek, E. (2004). "Latex allergy: diagnosis and management". Dermatologic Therapy. 17 (4): 289–301. doi:10.1111/j.1396-0296.2004.04024.x. PMID 15327474. S2CID 24748498. ^ Sussman, Gordon L.; Tarlo, Susan; Dolovich, Jerry (June 5, 1991). "The Spectrum of IgE-Mediated Responses to Latex". JAMA: The Journal of the American Medical Association. 265 (21): 2844–2847. doi:10.1001/jama.1991.03460210090035. PMID 2033741. Retrieved December 29, 2021. ^ Hamilton, Robert G. (May 2002). "Diagnosis of natural rubber latex allergy". Methods. 27 (1): 22–31. doi:10.1016/S1046-2023(02)00048-8. PMID 12079414. Retrieved December 29, 2021. ^ Turjanmaa, K.; Alenius, H.; Mäkinen-Kiljunen, S.; Reunala, T.; Palosuo (1996). "Natural rubber latex allergy". Allergy. 51 (9): 593–602. doi:10.1111/j.1398-9995.1996.tb04678.x. ISSN 0105-4538. PMID 8899110. S2CID 9316811. ^ Reddy, Sumana (January 1, 1998). "Latex Allergy". American Family Physician. 57 (1): 93–100. PMID 9447217. Retrieved December 29, 2021. ^ Hepner, David L.; Castells, Mariana C. (April 2003). "Latex Allergy: An Update". Anesthesia & Analgesia. 96 (4): 1219–1229. doi:10.1213/01.ANE.0000050768.04953.16. PMID 12651689. S2CID 2753609. ^ Heese, A.; Peters, K. P.; Koch, H. U. (January 1, 1997). "Type I allergies to latex and the aeroallergenic problem". The European Journal of Surgery Supplement. 579 (579): 19–22. PMID 9195178. Retrieved December 29, 2021. ^ a b c Nucera, Eleonora; Aruanno, Arianna; Rizzi, Angela; Centrone, Michele (2020-09-28). "Latex Allergy: Current Status and Future Perspectives". Journal of Asthma and Allergy. 13: 385–398. doi:10.2147/JAA.S242058. ISSN 1178-6965. PMC 7532063. PMID 33061465. ^ a b c d Parisi, Claudio A.S.; Kelly, Kevin J.; Ansotegui, Ignacio J.; Gonzalez-Díaz, Sandra Nora; Bilò, Maria Beatrice; Cardona, Victoria; Park, Hae-Sim; Braschi, Maria Chiara; Macias-Weinmann, Alejandra; Piga, Mario A.; Acuña-Ortega, Natalhie; Sánchez-Borges, Mario; Yañez, Anahí (2021-07-28). "Update on latex allergy: New insights into an old problem". The World Allergy Organization Journal. 14 (8): 100569. doi:10.1016/j.waojou.2021.100569. ISSN 1939-4551. PMC 8335653. PMID 34386153. ^ a b c "Latex allergy: Epidemiology, clinical manifestations, and diagnosis". medilib.ir. Retrieved 2024-02-15. ^ Health, Center for Devices and Radiological (2023-05-01). "Medical Gloves". FDA. ^ Condemi, John J. (August 2002). "Allergic reactions to natural rubber latex at home, to rubber products, and to cross-reacting foods". Journal of Allergy and Clinical Immunology. 110 (2): 107–110. doi:10.1067/mai.2002.124968. PMID 12170250. Retrieved December 29, 2021. ^ Kumar, R. Pradeep (January 2012). "Latex Allergy in Clinical Practice". Indian Journal of Dermatology. 57 (1): 66–70. doi:10.4103/0019-5154.92686. PMC 3312665. PMID 22470217. ^ Kockentiet, Brett; Adams, Brian B. (June 2007). "Contact dermatitis in athletes". Journal of the American Academy of Dermatology. 56 (6): 1048–1055. doi:10.1016/j.jaad.2006.12.025. PMID 17307275. Retrieved December 29, 2021. ^ Ventura, M. T.; Dagnello, M.; Matino, M. G.; Di Corato, R.; Giuliano, G.; Tursi, A. (April 2001). "Contact dermatitis in students practicing sports: incidence of rubber sensitisation". British Journal of Sports Medicine. 35 (2): 100–102. doi:10.1136/bjsm.35.2.100. PMC 1724305. PMID 11273970. Retrieved December 29, 2021. ^ Ylitalo, L.; Alenius, H.; Turjanmaa, K.; Palosuo, T.; Reunala, T. (November 2000). "Natural rubber latex allergy in children: a follow-up study". Clinical and Experimental Allergy. 30 (11): 1611–1617. doi:10.1046/j.1365-2222.2000.00924.x. PMID 11069571. S2CID 32522055. Retrieved December 29, 2021. ^ Sorva, R.; Mäkinen-Kiljunen, S.; Suvilehto, K.; Juntunen-Backman, K.; Haahtela, T. (February 1995). "Latex allergy in children with no known risk factor for latex sensitization". Pediatric Allergy and Immunology. 6 (1): 36–38. doi:10.1111/j.1399-3038.1995.tb00255.x. PMID 7550763. S2CID 20620438. Retrieved December 29, 2021. ^ a b "Protect Yourself from Latex Allergies". Ivanhoe Broadcast News. December 2008. Archived from the original on July 9, 2015. Retrieved June 12, 2015. ^ "Latex Allergy". Spina Bifida Association of New York State. Retrieved 2024-02-07. ^ a b Gromek, Weronika; Kołdej, Natalia; Świtała, Szymon; Majsiak, Emilia; Kurowski, Marcin (2024-07-19). "Revisiting Latex-Fruit Syndrome after 30 Years of Research: A Comprehensive Literature Review and Description of Two Cases". Journal of Clinical Medicine. 13 (14): 4222. doi:10.3390/jcm13144222. ISSN 2077-0383. PMC 11278189. PMID 39064262. ^ Brehler, R.; Theissen, U.; Mohr, C.; Luger, T. (1997). "'Latex-fruit syndrome': frequency of cross-reacting IgE antibodies". Allergy. 52 (4): 404–10. doi:10.1111/j.1398-9995.1997.tb01019.x. PMID 9188921. S2CID 27995880. ^ Gromek, Weronika; Kołdej, Natalia; Świtała, Szymon; Majsiak, Emilia; Kurowski, Marcin (2024-07-19). "Revisiting Latex-Fruit Syndrome after 30 Years of Research: A Comprehensive Literature Review and Description of Two Cases". Journal of Clinical Medicine. 13 (14): 4222. doi:10.3390/jcm13144222. ISSN 2077-0383. PMC 11278189. PMID 39064262. ^ Chen, Zhiping; Cremer, Reinhold; Posch, Anton; Raulf-Heimsoth, Monika; Rihs, Hans-Peter; Baur, Xaver (1997). "On the allergenicity of Hev b 1 among health care workers and patients with spina bifida allergic to natural rubber latex". Journal of Allergy and Clinical Immunology. 100 (5): 684–93. doi:10.1016/S0091-6749(97)70174-X. PMID 9389300. ^ Barre, Annick; Culerrier, Raphaël; Granier, Claude; Selman, Laetitia; Peumans, Willy J.; Van Damme, Els J.M.; Bienvenu, Françoise; Bienvenu, Jacques; Rougé, Pierre (2009). "Mapping of IgE-binding epitopes on the major latex allergen Hev b 2 and the cross-reacting 1,3β-glucanase fruit allergens as a molecular basis for the latex-fruit syndrome". Molecular Immunology. 46 (8–9): 1595–604. doi:10.1016/j.molimm.2008.12.007. PMID 19185347. ^ Kolarich, Daniel; Altmann, Friedrich; Sunderasan, Elumalai (2006). "Structural analysis of the glycoprotein allergen Hev b 4 from natural rubber latex by mass