The Unsuspected Allergy

By Donna Rawlins, Sue Smith & Judi Tyndall

The unsuspected allergy is a case study of a patient who had an anaphylactic reaction under anaesthesia. This scenario prompted the development of a program that considers potential consumer needs, concerns and ensures patient expectations are identified and met.

Case Scenario

Patient "X", a health care professional, was admitted to the hospital for routine abdominal surgery. Her patient history suggested past problems with contact dermatitis when exposed to hospital gloves, but otherwise no evidence of a previous allergic response to latex.

Induction of anaesthesia was successfully completed, but approximately fifteen minutes into the procedure, the patient's blood pressure decreased, her heart rate increased and upper body cutaneous flushing occurred. When the anaesthetist diagnosed an anaphylactic reaction she was immediately treated with a bolus of epinephrine and the abdominal incision was closed.

After a post-operative investigation at the Anaesthetic Allergy Clinic, a latex allergy was determined to be the precipitating event causing the anaphylactic reaction. This discovery ruled out the original hypothesis that this patient's response was drug related.

Health Care Issues

"Natural rubber is obtained from the tree *Havae Brasiliensis*. Latex is the milky sap from the tree. It is filtered to remove particulate debris and then preserved by adding either ammonia or sodium sulfite,"(Spaner, Dolovich, Tarlo, 1989).

Latex is a common component of equipment used not only in our hospital setting, but specifically, it is an essential element used within the surgical environment. Although reported cases of life-threatening anaphylactic reactions to latex are rare, health care professionals should be aware of this potential problem for patients who present with an allergy to latex products,(Gerber, Jorg, Zbinden, Seger & Dangel 1989, p. 800). Ultimately, "heightened awareness of this problem will identify those patients at risk and potentially avoid a catastrophic event" during the perioperative or post-operative period, (Nguyen, Burns, Shapiro, Mayo, Murrey & Mitchell 1991, p.573).

Problem Identification

Individuals such as health care providers routinely exposed to latex devices and patients with a history of chronic contact with latex products are especially susceptible.

Pre-operative assessment of these patient's should include a history of any contact dermatitis to rubber gloves or tingling and swelling of the tongue when blowing up balloons.

The patient population most at risk have had a past allergic response to latex and are scheduled for invasive procedures such as surgery, catheterizations, vaginal exams or dental work involving prolonged internal contact with latex products,(Nguyen et al 1991; Leynadier, Pecquet & Dry 1989; Sussman, Tarlo, Dolovich, 1991).

As the literature suggests, the severest reactions occurred after contact with vaginal, buccal or peritoneal mucous membranes, (Sussman et al 1991).

During operative procedures, the surgeon's gloves are constantly in contact with mucous membranes. This exposure to tissue and blood allows the latex antigen to be transferred from the rubber and be absorbed into the circulation causing severe systemic reactions such as tachycardia, hypotension, bronchospasm and upper body flushing, (Nguyen et al 1991; Sussman et al 1991; Gerber et al 1989). After reviewing the literature and comparing the overwhelming similarities to our case scenario, we understood the patient's previous physiological response to surgery, and recognized the need for a collaborative plan of care to prepare this patient for future surgery. Consequently, nurses from the Operating Room, Post-Anaesthetic Recovery Room and Surgical Ward met to develop an individualized plan of care to meet the patient's preoperative, perioperative and postoperative needs. An example of this plan of care is enclosed in Appendix A, The Perioperative Plan, and Appendix B, The Pre and Post-operative Plan. Our goal was to reduce or eliminate patient exposure to products containing latex and monitor the patient for any evidence of anaphylactic response.



Authors

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Outcome

Patient X had surgery without experiencing any systemic anaphylactic response related to her latex allergy.

The staff nurses from all areas were pleased to see that their efforts to provide a "latex-free" environment to ensure patient safety had been successful. We were eager to initiate and co-ordinate this patient's plan of care. In addition, our data collection has given us the opportunity to develop a Standard of Care for future operative cases in which sensitization or allergy to latex products is a concern. This program will enhance patient care because we are now prepared to identify a patient population that may be at risk for severe anaphylaxis secondary to latex allergies. In addition we can individualize our Standard of Care to meet each patient's unique needs.

In this scenario, we were able to utilize the research to assist with problem identification and determine appropriate interventions to meet our mutually-defined goals. Since patient participation in care planning was an integral part of our multidisciplinary conferences, we believe that this consumer's perception of our care was enhanced. The patient identified that her anxiety was greatly reduced because of the care co-ordinated by the nursing staff. She was also encouraged to participate in her own care which gave her a sense of control in a situation that initially seemed frightening and life-threatening.

Conclusion

We believe that our collaboration in care planning for Patient X has demonstrated the quality patient care our health care consumers expect. In addition, the participation of the patient in her own care planning has ensured consumer satisfaction through mutual goal attainment and positively influenced the patient's perception of the health care system.

Through this experience, we are expanding our surgical care plan to a multidisciplinary hospital-wide protocol to deal with latex allergies on a more global basis.

References

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APPENDIX A

Perioperative Nursing Care Plan for Patient with Latex Allergy

NURSING DIAGNOSIS	GOAL	NURSING INTERVENTIONS
1. Potential for anaphylatic response related to latex allergy	**1.** Patient will not experience anaphylatic reaction (mutually). **2.** Staff will reduce and/or eliminate patient's exposure to latex (nursing).	**1.** Check all equipment and supplies to be used in the OR (See list) **2.** Provide an OR where airborne latex particles will be kept to a minimum. Surgery to be done using the Laminar Air Flow for the entire set-up, induction and surgery. **3.** Co-ordinate with Respiratory Technology and Anaesthesia to provide latex free equipment. (See list below) **4.** Perioperative Nurse will visit the patient pre-op and post-op. **5.** OR will co-ordinate with the Ward to monitor use of latex products pre-op and post-op.

It is important to ensure that any item coming in contact with mucous membranes, intravenously or through incisions, should be latex free. In our Operating Room, we have researched all products used in General, Urology, ENT, Dental, Orthopaedic, Gynecology, Oncology and Laser surgery. We suggest that each hospital review their equipment and products for the presence of Latex. Product adaptation is essential because each hospital would utilize different manufacturers or suppliers. We are in the process of checking all companies and obtaining a letter from each stating the contents of their products. We plan to publish our list and hospital protocol in a future issue of the *Canadian Operating Room Nursing Journal.*

Equipment and Supplies to be Used

1. Gloves - Vinyl bulk and sterile non-latex gloves to be used.
2. Sponges.
3. Suction tubing
4. Catheters - in and out catheter vinyl Silicone Foley Catheter
5. Cautery and Grounding pad.
6. Disposable drapes.
7. Suture material.
8. O.R. Masks.
9. O.R. bed, pillows and stretcher.
10. Dressings.
11. Camera Drapes.
12. Cytology Brushes.
13. Cesium Applicators.
14. Esmark Bandages.
15. Femoral Brushes.
16. Hemodialysis Equipment.
17. Hichman Catheters.
18. Endoscopic Washers.
19. Positioning devices i.e., bean bags.
20. Irrigation Sets i.e., in Total Hips.
21. Stockinette.
22. Implants in Tympanic Membranes.
23. Mouth Gags.
24. Drains.
25. PCA Tubing.
26. Retention Rubbers (silicone).
27. Rubber Shods (silicone).
28. Stapling Equipment.
29. Urinary Investigational Catheters.
30. Asysto Syringes.

Anaesthetic Equipment:

Patient Will Preferably Receive Epidual or Spinal Anaesthetic

1. Spinal and Epidural Catheters.
2. Gas Machine - Filter to be used to block any airborne latex particles from the machine if a general anaesthetic is necessary.
3. Endotracheal tubes.
4. Nasal Oxygen specials.
5. Syringes - glass syringes will be used.
6. Monitor Discs
7. Head strap.
8. Breathing masks - plastic mask **THIS MASK IS TO FOLLOW THE PATIENT TO RECOVERY ROOM AND THE WARD.**
9. AMBU Bag.
10. Tourniquet - Use a Webril beneath tourniquet or use a velcro tourniquet.
11. I.V. Tubing.
12. Tapes.
13. Temperature probes.
14. Arterial Lines and CVP Lines, Swan Ganz Catheters.
15. Blood Bags.

APPENDIX B

Pre/post-operative Nursing Care Plan for Latex Allergy

NURSING DIAGNOSIS	GOAL	NURSING INTERVENTIONS	EVALUATION
Potential anaphylatic response related to latex allergy	Patient will not experience anaphylactic reaction (mutual) Staff will reduce and/or eliminate patient's exposure to latex (nursing)	- collaborate with other health care professionals to reduce exposure to latex&equipment containing latex - check all equipment & supplies to be used pre/post operatively on ward - patient will be kept in a private room where airborne latex particles will be kept to a minimum - Perioperative nurse will visit the patient pre/post operatively to alleviate anxiety - the following equipment must be deemed latex-free and rubber-free to be used for nursing care: a) vinyl gloves in room b) dressings c) oxygen tubing including resuscitation equipment d) syringes - glass recommended e) enema kit, rectal tube, pre-op prep sponge f) urinary catheters - indwelling and in/out must be silicone coated g) dietary tray, razor and hospital mattress h) thermometer - use glass in room,or latex-free probe i) IV equipment, IV tape j) BP cuff & stethoscope - rubber sections may contain latex; but can be used for short periods. **Do Not Leave These Areas In Contact With The Patient's Skin** k) patient to bring in own pillow n) patient may have PCA therapy post-op for pain management, thus reducing the need for extra glass syringes.	