Introduction
Exposure to powder from surgical gloves presents a health hazard, with possible untoward reactions, to patients and staff. It has been well documented in literature: glove cornstarch powder induces adhesion formation while potentiating wound infections. Additionally, latex proteins bind with glove powder, becoming aerosolized when gloves are removed from the package, donned or removed from the hands. These aerosolized latex proteins then precipitate a potentially life-threatening allergic reaction in latex sensitized patients and healthcare providers.²

Powdered Gloves May Contribute to an Increased Risk of Surgical Site Infections (SSIs)
Patients who suffer hospital-acquired infections cost hospitals up to $34,670 in direct costs³, a figure that can rise sharply when indirect costs such as increased litigation, decreased referrals, unreimbursed expenses as well as a patient’s lost wages and potential morbidity are included.

Glove powder can, and will, trigger unnecessary hazards leading to:⁴
  • delayed wound healing
  • bacterial environmental contamination
  • adhesion formation
  • granuloma formation

It is difficult to estimate the exact amount of glove powder that is released into an incision, especially with the variability in size and the practice of changing gloves during surgery; which subsequently introduces additional powder. According to a study by Suding, the existence of more than 10 mg/ml of glove powder may affect the rate of abscess formation.⁵

All of these potential consequences can increase the risk of Surgical Site Infections (SSIs).

Glove Powder Acts as Vector to Latex Allergen with Increased Association of Occupational Asthma
Powdered latex gloves have been implicated as one of the main contributors to the latex aeroallergen levels in a healthcare facility.⁶ A protocol to establish a natural rubber latex-safe environment should be developed and implemented⁷ in all healthcare facilities. Latex proteins can be aerosolized by attaching to glove powder, increasing latex allergy sensitization and potentially eliciting delayed hypersensitivity reactions upon direct and indirect contact.⁸ This not only can increase the risk of acquiring a latex allergy, but can also increase the risk of acquiring occupational asthma through inhalation of the latex proteins.⁹ Additionally, in a study by Kelly not only were sensitization rates reduced with the use of low-allergen, powder-free latex gloves, some healthcare workers actually lost their sensitivity thus allowing them to continue to work in their environment.¹⁰
FDA Proposal to Ban Powdered Surgical Gloves

FDA has expressed their intent to propose to ban powdered gloves, as follows:

- “FDA has determined that a subset of surgeon and patient exam gloves that are powdered and that represent a modest share of the market present a substantial risk of illness that cannot be corrected by a change in labeling. These gloves are powdered natural rubber latex surgeon’s gloves, powdered synthetic latex surgeon’s gloves, powdered natural rubber latex patient examination gloves, powdered synthetic patient examination gloves, and absorbable powder for lubricating a surgeon’s glove. Consequently, FDA is proposing to ban these devices.”

Conclusion

Cornstarch powder is not benign. When starch glove powder was originally introduced in 1947, researchers hoped that it would prove to be inert in clinical practice. Over time, however, it became evident from clinical and laboratory studies that cornstarch was capable of producing post-operative reactions, foreign body granuloma formation and delayed wound healing. Cornstarch powder also leads to increased latex sensitivity in healthcare workers. Type 1 and Type IV hypersensitivity reactions to latex proteins in hospital staff may lead to increased staff sick time and decreased job satisfaction, when the employee can no longer stay in their current position.

In 1947, the origin of powder used on gloves was to aid in donning. In 2015, this is no longer necessary. Now is the time to eliminate powder from all operating rooms, further initiating a latex-safe environment for patients and healthcare workers alike.

References:

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