Key points

- Surgical gloves play an integral part of the infection control process in the operating room (O.R.), both in preventing surgical site infections and in protecting healthcare workers from exposure to blood borne pathogens.

- Blood remains the most significant source of exposure to blood borne diseases such as human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV) in the healthcare setting with percutaneous exposure holding the greatest risk – causing approximately 89% of occupationally transmitted cases of HIV and representing the only risk factor independently associated with HCV infection.

- The use of an effective surgical glove barrier is therefore imperative in the protection of the surgeon and other O.R. personnel.

- This multicentre study was undertaken to compare the use of Biogel surgical gloves from Mölnlycke Health Care to other surgical gloves, under in-use conditions during routine surgical procedures, to evaluate any impact on glove failure rates.

Objectives

To investigate surgical glove failure rates of multiple glove brands in operating rooms under in-use conditions.

Methodology

Five centres participated in the study, each for three consecutive months between September 2005 and December 2009. Within the centres, Biogel was compared to the current major surgical glove being used. All comparisons were based on preferred product.

Month 1: The O.R. nurse observed and documented time and type of surgery, initials and roles of each member of the surgical team, type and brand of glove worn by each O.R. team member, reasons for any changing or discarding of gloves and replacement gloves used after a change of glove or glove failure.
Month 2: All surgical gloves were replaced with a comparable Biogel glove. To allow participants a time to adjust to the new surgical glove, no data were collected during this month.

Month 3: The same data was collected as in Month 1.

Results

- The glove failure rate in Month 1 with primarily non-Biogel gloves was 5.7% compared with 1.2% in Month 3 with primarily Biogel gloves, with a confidence interval of 95%.

- The glove failure rate across the observation period (Months 1 and 3 combined) was significantly greater for non-Biogel users than Biogel users at 6.3% versus 1.3%, respectively.

- Non-Biogel users double gloving experienced a significantly higher rate of failure than those single gloving (11.9% versus 4.4%, respectively). By contrast, there was no significant difference in failure rate by gloving practice amongst Biogel users (1.2% and 1.3% for single and double gloving, respectively). In addition, both single and double gloving failure rates for non-Biogel users were significantly higher than for Biogel users.

- When evaluated by hospital, non-Biogel glove failure rates were significantly higher than Biogel glove failure rates at each centre, with differences in rates ranging from as much as 10.9 percentage points in large teaching hospitals to a low of 2.2 percentage points in the ambulatory surgery center.

- Glove failure rates for non-Biogel users were also significantly higher than those of Biogel users across every procedure type except for neurosurgery where no significant difference was observed.

- Equally, where it could be determined, the number of gloving opportunities per participant (which ranged from 1 to 100+) did not affect the failure rate by brand with the Month 1 non-Biogel failure rate being significantly greater than the Month 3 Biogel failure rate in every category except ‘unable to determine’.

Conclusion

This study clearly shows that there is a significant difference in barrier protection provided by different glove brands. This has profound implications in today’s healthcare environment – both in terms of cost and infection control. It is in the interest of all surgical personnel, their patients, and the hospitals they practice in, to invest in surgical gloves that provide the most effective barrier. Compared to Biogel surgical gloves other glove types are at least 3.5 times as likely to fail.

References


Find out more on www.molnlycke.com

Molnlycke Health Care AB, Box 13080, SE-402 52 Göteborg, Sweden.
T +46 31 722 30 00. F +46 31 722 34 00. www.molnlycke.com

The Molnlycke Health Care name and logo and Biogel® name and logo are registered globally to one or more of the Molnlycke Health Care Group of Companies. Copyright (2012) MRM #36659