

Medical News

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Intranasal Mupirocin and Postoperative *Staphylococcus aureus* Infections

Patients with nasal carriage of *Staphylococcus aureus* have an increased risk of surgical-site infections caused by that organism. Treatment with mupirocin ointment can reduce the rate of nasal carriage and may prevent postoperative *S. aureus* infections. Perl and colleagues conducted a randomized, double-blind, placebo-controlled trial to determine whether intranasal treatment with mupirocin reduces the rate of *S. aureus* infections at surgical sites and prevents other nosocomial infections.

Of 4,030 enrolled patients who underwent general, gynecologic, neurologic, or cardiothoracic surgery, 3,864 were included in the intention-to-treat analysis. Overall, 2.3% of mupirocin recipients and 2.4% of placebo recipients had *S. aureus* infections at surgical sites. Of the 891 patients (23.1% of the 3,864 who completed the study) who had *S. aureus* in their anterior nares, 444 received mupirocin and 447 received placebo. Among the patients with nasal carriage of *S. aureus*, 4.0% of those who received mupirocin had nosocomial *S. aureus* infections, as compared with 7.7% of those who received placebo (odds ratio for infection, 0.49; 95% confidence interval, 0.25 to 0.92; $P = .02$).

The researchers concluded that prophylactic intranasal application of mupirocin did not significantly reduce the rate of *S. aureus* surgical-site infections overall, but it did significantly decrease the rate of all nosocomial *S. aureus* infections among the patients who were *S. aureus* carriers.

FROM: Perl TM, Cullen JJ, Wenzel RP, et al. Intranasal mupirocin to prevent postoperative *Staphylococcus aureus* infections. *N Engl J Med* 2002;346:1871-1877.

Medical Record Reliability for Estimating Adverse Event Rates

The data used by the U.S. Institute of Medicine to estimate deaths from medical errors come from a study that relied on nurse and physician review of medical records to detect the errors. Thomas and colleagues from the Brigham and Women's Hospital and Harvard School of Public Health conducted a review of medical records of patients hospitalized in Utah and Colorado in 1992 to measure the reliability of medical record review for detecting adverse events and negligent adverse events. After three independent reviews of 500 medical records, the following were measured: reliability and the effect of varying criteria for reviewer confidence in and reviewer agreement about the presence of adverse events.

The researchers found that for agreements in judgments of adverse events among the three sets of reviews,

the kappa statistics ranged from 0.40 to 0.41 (95% confidence intervals ranged from 0.30 to 0.51) for adverse events and from 0.19 to 0.23 (confidence intervals, 0.05 to 0.37) for negligent adverse events. Rates for adverse events and for negligent adverse events varied substantially depending on the degree of agreement and the level of confidence that was required among reviewers.

The researchers concluded that the estimates of adverse event rates from medical record review, including those reported by the Institute of Medicine in its 2000 report on medical errors, are highly sensitive to the degree of consensus and confidence among reviewers.

FROM: Thomas EJ, Lipsitz SR, Studdert DM, Brennan TA. The reliability of medical record review for estimating adverse event rates. *Ann Intern Med* 2002;136:812-816.

Chlorhexidine Versus Povidone-Iodine for Vascular Site Care: A Meta-Analysis

Bloodstream infections related to the use of catheters, particularly central line catheters, are an important cause of patient morbidity and mortality and increased healthcare costs. This meta-analysis, conducted by Chaiyakunapruk and colleagues from the Naresuan University, Pitsanulok, Thailand, evaluated the efficacy of skin disinfection with chlorhexidine gluconate compared with povidone-iodine solution in preventing catheter-related bloodstream infection. Data sources included multiple computerized databases (1966 to 2001), reference lists of identified articles, and queries of principal investigators and antiseptic manufacturers. Randomized, controlled trials comparing chlorhexidine gluconate with povidone-iodine solutions for catheter-site care were selected for the study. Using a standardized form, two reviewers abstracted data on study design, patient population, intervention, and incidence of catheter-related bloodstream infection from all included studies.

Eight studies involving a total of 4,143 catheters met the inclusion criteria. All studies were conducted in a hospital setting, and various catheter types were used. The summary risk ratio for catheter-related bloodstream infection was 0.49 (95% confidence interval, 0.28 to 0.88) in patients whose catheter sites were disinfected with chlorhexidine gluconate instead of povidone-iodine. Among patients with a central vascular catheter, chlorhexidine gluconate reduced the risk for catheter-related bloodstream infection by 49% (risk ratio, 0.51; confidence interval, 0.27 to 0.97).

The authors concluded that the results suggest that the incidence of bloodstream infections is significantly reduced in patients with central vascular lines who receive chlorhexidine gluconate versus povidone-iodine for inser-

tion-site skin disinfection. Use of chlorhexidine gluconate is a simple and effective means of reducing vascular catheter-related infections.

FROM: Chaiyakunapruk N, Veenstra DL, Lipsky BA, Saint S. Chlorhexidine compared with povidone-iodine solution for vascular catheter-site care: a meta-analysis. *Ann Intern Med* 2002;136:792-801.

Nasal Myiasis Linked to Hospital-Wide Mouse Infestation

Beckendorf and colleagues from the University of Arizona Health Sciences Center reported a large city hospital experience with infestation of mice combated in part by broadcasting poisoned baits. Months later there was an invasion of flies into the hospital, and two comatose patients in an intensive care unit contracted nasal maggots. Adult flies were trapped and maggots removed from the nares of the second patient. These were identified as the green blowfly (*Phaenicia sericata*).

Recent downsizing of hospital personnel had led to the unintended and unrecognized loss of housekeeping services in the canteen food storage areas. A mouse infestation of the hospital occurred, with the epicenter in the canteen area. This was initially addressed by scattering poisoned bait and using rodent glue boards. The result of such treatment was the presence of numerous mouse carcasses scattered throughout the building attracting the green blowfly. Adult gravid female flies trapped in the new intensive care unit (where mice were not present) laid eggs in the fetid nasal discharge of two comatose patients. Live trapping of mice and removal of carcasses led to an abatement of the fly infestation. The cause-and-effect nature of the mouse carcasses and flies was underscored a year later when an outbreak of *P. sericata* occurred in the operating department and was linked to the presence of mouse carcasses on glue boards not removed the previous fall. Hence, the disruption or loss of one vital link in hospital organization (in this case, housekeeping support) may lead to an unintended and bizarre outcome.

FROM: Beckendorf R, Klotz SA, Hinkle N, Bartholomew W. Nasal myiasis in an intensive care unit linked to hospital-wide mouse infestation. *Arch Intern Med* 2002;162:638-640.

Vancomycin-Resistant Enterococci in Pork and Poultry Products in France

Gambarotto and co-investigators from the Limoges University Teaching Hospital, Limoges, France, collected meat products from public retail outlets and tested them for

the presence of vancomycin-resistant enterococci (VRE) in an area with a high prevalence of VRE reported in human fecal samples. VRE were detected in 66% of the samples, and a predominance of VanC strains was found, which is also true for human fecal samples.

FROM: Gambarotto K, Ploy MC, Dupron F, Giangiobbe M, Denis F. Occurrence of vancomycin-resistant enterococci in pork and poultry products from a cattle-rearing area of France. *J Clin Microbiol* 2001;39:2354-2355.

Risk of Hepatitis C Virus Transmission From Surgeon to Patient: A 7-Year Retrospective Investigation

Currently, it is not known how often hepatitis C virus (HCV) is transmitted from infected healthcare workers to patients during medical care. Ross and colleagues from the Institute of Virology, National Reference Centre for Hepatitis C, Essen, Germany, tried to determine the rate of provider-to-patient transmission of HCV among former patients of an HCV-positive gynecologist after it was proven that he had infected one of his patients with HCV during a cesarean section.

All 2,907 women who had been operated on by the HCV-positive gynecologist between July 1993 and March 2000 were notified about potential exposure and were offered free counseling and testing. The crucial differentiation between HCV transmissions caused by the gynecologist and infections contracted from other sources was achieved by epidemiologic investigations, nucleotide sequencing, and phylogenetic analysis.

Of the 2,907 women affected, 78.6% could be screened for markers of HCV infection. Seven of these former patients were found to have HCV. Phylogenetic analysis of HCV sequences from the gynecologist and the women did not indicate that the virus strains were linked. Therefore, no further iatrogenic HCV infections caused by the gynecologist could be detected. The resulting overall HCV transmission rate was 0.04% (1 per 2,286; 95% confidence interval, 0.008% to 0.25%).

The authors concluded that this was the largest retrospective investigation of the risk of provider-to-patient transmission of HCV conducted so far. They noted that their findings support the notion that such transmissions are relatively rare events and might provide a basis for future recommendations on the management of HCV-infected healthcare workers.

FROM: Ross RS, Viazov S, Thormahlen M, et al. Risk of hepatitis C virus transmission from an infected gynecologist to patients: results of a 7-year retrospective investigation. *Arch Intern Med* 2002;162:805-810.