

Antibiotic Prophylaxis in the Surgical Setting: Get Involved

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The development of a postoperative infection at the surgical site is one of the most devastating adverse effects of surgery. Patients who experience such infections have greater mortality, increased length of hospital stay, and greater likelihood of readmission to hospital than patients without infections. Multiple factors decrease the rate of surgical-site infections, including preparation of the site (removal of hair), metabolic normalization (glucose control), and body temperature (maintenance of normothermia).¹ However, the most important element in preventing these infections is the appropriate utilization of antibiotic prophylaxis. For this reason, the report by Sabuda and others² describing their audit of the use of antibiotic-containing bone cement (ABC) as prophylaxis in conjunction with arthroplasty (see page 321 of this issue) is an important reminder of the role that pharmacists can play in optimizing surgical prophylaxis. In particular, these authors found inconsistency in the selection of both patients and ABC, as well as instances in which patients at risk for systemic toxicity were inappropriately exposed, all of which highlight the need to review antibiotic prophylaxis practices.

Sabuda and others focus exclusively on the use of ABC, providing a good overview of the potential merits and toxic effects of such materials. Although published investigations into the efficacy of ABC suggest a benefit in reducing infections in cases of arthroplasty, the low infection rate associated with contemporary surgical techniques challenges health care providers to justify using this form of therapy.³ A number of toxic effects, including renal impairment, are possible with exposure to the antibiotics within bone cement, and the potential also exists for allergic reactions to the antibiotic.³ Given the uncertainty of the benefit and the associated risks of the therapy, Sabuda and others should be applauded for demonstrating the potential role of pharmacists in investigating the factors contributing to the use of questionable therapy. For example, they mention their

efforts to discuss their findings with prescribers to “standardize the selection and criteria for the use of ABCs in orthopedic surgery”. This is a great example of the impact that pharmacists can have on the appropriate use of drugs and on improving outcomes for patients.

The interest that has been shown in applying the Safer Healthcare Now! initiative across Canada indicates that many Canadian pharmacists are practising in institutions where antibiotic prophylaxis for surgical procedures is suboptimal. Pharmacists involved in the preparation of patients for surgery (or their recovery afterward), the appropriate use of antibiotics, and the overall safety of hospital patients should investigate patterns of antibiotic prophylaxis within their institutions. Large audits of antibiotic prophylaxis for surgical procedures in the United States have indicated that an unacceptable proportion of patients receive the drugs inappropriately, most frequently in terms of timing.^{4,5} Since the timely administration of the antibiotic is key to its efficacy, pharmacists need to ensure that processes and systems within their respective institutions reflect the varied needs of preoperative patients.⁶

The Safer Healthcare Now! initiative recommends specifically that pharmacy be involved and that the input of the pharmacist be sought when assessing the appropriateness of surgical prophylaxis within an institution.¹ Potential roles for the pharmacist include preparation of recommended antibiotics with dosages appropriate for known or presumed pathogens and their antibiotic sensitivities within the specific institution. In addition, pharmacists can assist in preparing preoperative ordering tools (either preprinted forms or standardized computer entry screens) to specify the recommended antibiotic(s) and appropriate instructions for time and rate of administration. Pharmacists should assist in ensuring that the necessary antibiotics are available in a timely manner at the location of preoperative administration, to avoid premature initiation or inappro-



priate delays in administration of the medication or the operation itself. This may involve reorganization of the drug distribution system to include efficient dispensing of medications to the preoperative area or use of automated dispensing machines or ward stock supplies at the point of administration. Protecting the patient from receiving an antibiotic that is unnecessary (e.g., for a noninvasive procedure) or that should be avoided (e.g., because of an allergy) must also be considered in designing the drug distribution system for timely preoperative administration. Finally, the pharmacist can contribute to assessing the surgical team's adherence to the processes developed and adopted within the institution. Through such quality assurance activities, the pharmacist ensures that patients receive the drug treatment they need in the appropriate fashion. A definite need exists for pharmacists to be involved in the initial development and evolution of preoperative procedures within our institutions. Let's ensure that we meet the need!

References

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ON THE FRONT COVER

Rosaceae

The photograph on the front cover depicts a member of the Rosaceae family. It was taken by Ken Wou in Kamloops, British Columbia, with a Canon Digital Rebel XT, equipped with a 100-mm macro lens.



Various parts of the rose have been used for their chemical, culinary, and medicinal properties. The fruit, known as rose hips, is high in vitamin C and iron and also contains vitamins A, D, and E, essential fatty acids, pectin, malic and citric acids, and antioxidant flavonoids. Rose hips have reportedly been used to prevent urinary tract infections and to treat rheumatoid arthritis, liver and gallbladder problems, colds, influenza, dizziness, headaches, and constipation.

The rose is the subject of research at several Canadian institutions. For example, at the Memorial

University of Newfoundland Botanical Garden, researchers are investigating the potential for commercial production of rose hips as a source of health protective and disease-prevention constituents (see http://www.mun.ca/botgarden/plant_bio/research/rose_article.pdf). At the Montreal Neurological Institute, researchers found that olfactory sensitivity to phenyl ethyl alcohol (the compound responsible for the characteristic rose scent) was greater in the upright than the supine position, which may have implications for olfactory neuroimaging studies (*Chem Senses* 2006;31[3]:249-252).

In 2009, *CJHP* will start a new cover series, featuring rural hospitals and their pharmacy departments. The journal would be pleased to consider photographs taken by CSHP members for use in this series. If you would like to submit a photograph, please send an electronic copy (minimum resolution 300 dpi) to Sonya Heggart at sheggart@cshp.ca.

