

Efforts to Prevent Surgical Site Infection After Colorectal Surgery

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A surgical-site infection (SSI) is one of the most interesting issues among surgeons and is the second most frequent nosocomial infection (20%) after urinary tract infection (36%) [1]. The severity of a SSI can vary from trivial to very significant as it can be highly associated with morbidity and mortality. It can also increase the clinical and financial burden because affected patients will need to undergo longer hospitalizations [2].

The causes of SSIs have been considered to be related to three factors: the patient, the contaminating organisms, and the operative procedure [3-5]. The patient-related factors, the most important factors in the development of SSIs [6], include old age, immunocompromised condition, and comorbidity such as cirrhosis, diabetes, chronic obstructive pulmonary disease, and cancer [3, 5-8]. The contaminating organisms isolated from SSIs are expected to have originated from the patient's endogenous flora. They will be polymicrobial if the procedure involves opening the colon or rectum [3]. The procedure-related factors consist of inadequate skin preparation, poor preoperative shaving, a long duration of surgery, inadequate ventilation of the operating room, and massive tissue trauma [3, 5, 7, 9-11].

In colorectal surgery, surgeons especially give more attention to taking care of the surgical site to avoid infection because wounds of opened viscus organs, such as the colon and the rectum, are considered a clean-contaminated wound, even though the surgery is performed without contamination. A clean wound, in general, is not related with a SSI. Furthermore, fecal contamina-

tion and bacterial translocation during the colorectal surgery can cause a postoperative infection and increase the morbidity and mortality.

These unpleasant SSIs can be prevented by using several processes, including preoperative skin antisepsis, maintenance of normothermia during surgery, appropriate hair removal, use of a wound protector, and administration of prophylactic antibiotics (PAs). Particularly, in colorectal surgery, the traditional regimens to prevent SSIs are prolonged fasting, bowel preparation, and antibiotic prophylaxis.

Because PAs have reduced the incidence of SSIs in colorectal surgery, the colon surgery guidelines recommend that PAs be administered perioperatively [12]. The U.S. Food and Drug Administration approved second-generation cephalosporin monotherapy or a combination of first-generation cephalosporin with metronidazole or ampicillin-sulbactam as PAs for colorectal surgery. However, although previous studies recommended that the duration of prophylaxis be within 24 hours after surgery and showed that long-term prophylaxis was not useful for reducing the wound infection rate [13, 14], the current practices in Korea tend to administer different combinations and to use different durations of PAs in different hospitals [15]. The abuse of antibiotics is well known to increase resistance to the antibiotic; in fact, the number of SSIs caused by antibiotic-resistant bacteria and fungi is on the rise [3, 11, 16, 17], which is the reason continuous research for preventing SSIs has been emphasized.

For better results, a national consensus for SSI prevention should be reached at the government level in Korea. The American College of Surgeons National Surgical Quality Improvement Program is a national program in the United States to measure surgical outcomes in order to improve surgical care. It has constructed a surgery-related database that has been nationally validated [18]. In Korea, the Korean Nosocomial Infections Surveillance System (KONIS) was established in 2006 [19]. This system uses the KONIS Web-based Reporting and Analysis Program provided by voluntary participation of hospitals for the collection and sharing of SSI data. Recently, KONIS has tried to involve more hospitals and to make a qualified database. This continuous effort is instrumental if the incidence rate of SSIs is to be decreased, which

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would also decrease the financial burden of health care and increase the quality of surgical outcomes.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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