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SHORT REPORT

Active prospective surveillance study with post-discharge surveillance of surgical site infections in Cambodia



José Guerra^{a,*}, Céline Guichon^b, Margaux Isnard^a,
Saphy So^a, Sophors Chan^a, Sébastien Couraud^b,
Bunn Duong^a

^a *Preah Kossamak Hospital, 271 Sangkat Teuk Loak II Street, Khan Tuol Kok, Phnom Penh City, Cambodia*

^b *Prupet NGO, Centre Hospitalier Moulins, 10, Avenue Général de Gaulle, 03006 Moulins Cedex, France*

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Summary Barriers to the implementation of the Centers for Disease Control and Prevention (CDC) guidelines for surgical site infection (SSI) surveillance have been described in resource-limited settings. This study aimed to estimate the SSI incidence rate in a Cambodian hospital and to compare different modalities of SSI surveillance. We performed an active prospective study with post-discharge surveillance. During the hospital stay, trained surveyors collected the CDC criteria to identify SSI by direct examination of the surgical site. After discharge, a card was given to each included patient to be presented to all practitioners examining the surgical site. Among 167 patients, direct examination of the surgical site identified a cumulative incidence rate of 14 infections per 100 patients. An independent review of medical charts presented a sensitivity of 16%. The sensitivity of the purulent drainage criterion to detect SSIs was 83%. After hospital discharge, 87% of the patients provided follow-up data, and nine purulent drainages were reported by a practitioner (cumulative incidence rate: 20%). Overall, the incidence rate was dependent on the surveillance modalities. The review of medical charts to identify SSIs during hospitalization was not effective; the use of a follow-up card with phone calls for post-discharge surveillance was effective.

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* Corresponding author at: 122 Avenue de Dunkerque, 59000 Lille, France.
E-mail address: j.guerra.sp@gmail.com (J. Guerra).

Introduction

The Centers for Disease Control and Prevention (CDC) guidelines [1] are currently the gold standard for surgical site infection (SSI) surveillance [2]. In resource-limited settings, there are barriers to correctly implementing the CDC guidelines [3,4]. In this study, we aimed to do the following: estimate the SSI incidence rate in a Cambodian hospital and compare different modalities of SSI surveillance in a resource-limited setting.

Methodology

Using an active prospective study with post-discharge surveillance, we collected data on the occurrence of SSIs at the Preah Kossamak Hospital in Phnom Penh, Cambodia [5]. There were three inclusion criteria: be at least 17 years of age; undergo surgery; and remain hospitalized at least 48 h after surgery. Each patient gave his/her informed consent before enrolling in the study. The study was approved by the Cambodian National Ethics Committee for Health Research with the reference 36NECHR.

During the hospital stay, the CDC criteria to identify SSIs were independently collected twice:

- by direct examination of the surgical site every two days by teams of trained surveyors;
- and by review of the medical charts after discharge by another single trained surveyor.

The criteria used to identify the occurrence of SSIs during the hospital stay are presented in Fig. 1.

After discharge from the hospital, we used a follow-up card to collect the occurrence of purulent drainage from the surgical wound. The card was given to the patient during the hospital stay. Then, patients were called by phone at the following times:

- the day after discharge to remind them to give the follow-up card to any practitioner examining the surgical site during the 30 days following surgery;
- and 15 and 30 days following surgery to collect the information from the card and to ask the patient if white liquid had discharged from the surgical wound.

For the included and not included surgical patients, we compared age, gender and province of residence, what type of surgery they underwent, the duration of their surgery, whether they underwent elective or emergency surgery, the American

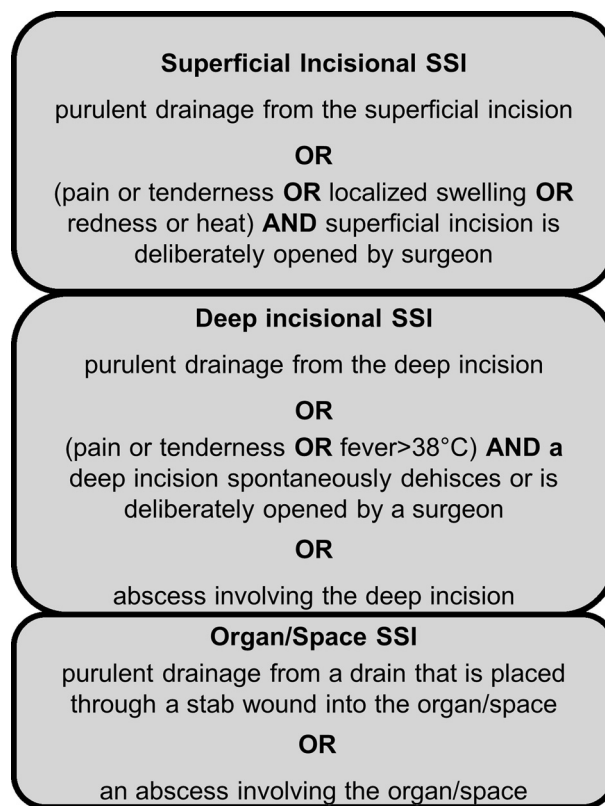


Figure 1 American Centers for Disease Control criteria and algorithm used to identify surgical site infections during hospital stay.

Society of Anesthesiologists' score [6] and the surgical wound classification [6] using two-tailed univariate analysis with an alpha risk of 5%.

The SSI cumulative incidence rate was the number of new SSIs identified during the 30 days after surgery divided by the number of patients included. We studied the effectiveness of reviewing medical charts and of the single use of the purulent drainage criterion to identify SSIs. Direct examination of the surgical site every two days using the CDC criteria was considered the gold standard.

Results

From April, 17th to June, 11th 2011, 260 patients underwent surgery. Among them, 167 patients were included in the study. After discharge, 87% of the patients provided follow-up data, with a contact rate of 85.6% and 79.3% 15 and 30 days after surgery, respectively.

The male to female ratio of the included patients was 1.65:1. Their median age was 28 years ([10; 90] percentiles: [20.5; 63]), and only 24.2% lived in the

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