

Surgical site infections in orthopedics, 1999–2005

Abstract

General

Twelve hospitals participated in the Finnish hospital infection programme (SIRO) between 1999 and 2005.

The surveillance covered all the patients who underwent surgery in 1999–2005.

- Hip arthroplasty (n=18,531)
- Open reduction of femur fracture (n=4,947)
- Knee arthroplasty (n=12,292)

A total of 1,161 surgical site infections (SSI) were identified.

- 860 (74%) superficial, 157 (14%) deep and 144 (12%) organ/space.

Of the SSIs, 656 (57%) were detected after discharge from the hospital.

- 306 (47%) at readmission to the hospital
- 286 (44%) by postdischarge questionnaire
- 65 (10%) at follow-up visit

The overall rate of SSIs was 3.2% and it varied between 2.6 and 3.8% by procedure type.

The use of a special postdischarge questionnaire increased the SSI rates.

- Hip arthroplasty 3.0% -> 3.8%
- Open reduction of femur fracture 2.1% -> 2.8%
- Knee arthroplasty 1.8% -> 2.6%

The SSI rates increased by National Nosocomial Infection Surveillance (NNIS) risk index category.

- Hip arthroplasty: NNIS category 0 (2.6%), 1 (4.2%) and 2&3 (4.7%)
- Open reduction of femur fracture: NNIS category 0 (1.5%), 1 (3.2%) and 2&3 (3.0%)
- Knee arthroplasty: NNIS category 0 (1.7%), 1 (2.9%) and 2&3 (3.7%).

Causative organisms and their antimicrobial susceptibility

In 892 SSIs (77%), the causative organism was identified and 262 (22%) infections were polymicrobial, i.e. there were several microbes involved.

The most common pathogens were coagulase-negative staphylococci (40%), *Staphylococcus aureus* (21%), enterococci (7%) and *Pseudomonas aeruginosa* (7%).

Of the coagulase-negative staphylococci, 75% (343/458) were methicillin-resistant (MRSE).

Three per cent (8/238) of the *Staphylococcus aureus* isolates were methicillin-resistant (MRSA).

One per cent (1/145) of the enterococci was vancomycin-resistant (VRE).

Six per cent (5/78) of the *Pseudomonas aeruginosa* isolates were tobramycin-resistant (TRPA).

Conclusions

The risk classification seems to be useful in the evaluation of SSI risk.

The SSI rates in Finland are clearly higher than the rates reported by the United States and somewhat higher than the rates in the Netherlands, England and Germany.

The higher rates are partly explained by postdischarge surveillance, but even during in-hospital surveillance, the interpretation of the definition of SSI as well as the diagnostic practices may vary.