



Introduction

Infections after instrumented spinal surgery (2 % ; range 0.2-4 %) are difficult to manage, involve considerable costs, and diminish the patients' quality of life. (2) The Belgian Center for Medical Knowledge (KCE) reported an overall additional cost for nosocomial infections of € 384.3 million in 2008. The cost of Methicillin Resistant Staphylococcus Aureus (MRSA) infections was estimated to be € 7000-17000/case. Recently MRSA is also found outside hospital environments and risk factors for carriage are suggested. (1) We prospectively studied the pre-operative incidence of MRSA carriage in patients scheduled for spinal surgery

Methods

Thousand consecutive patients scheduled for elective, instrumented spinal surgery, were screened by nasal, axillar and peritoneal swab for MRSA carriage. The patients identified as MRSA carrier, received decontamination and surgery was only performed when 3 consecutive screenings were negative. All MRSA carriers were questioned to assess risk factors, as described in the literature (see table 1). Figure 1 shows the study flow chart.

Table 1

Risk factors for MRSA carriage at hospitalization

- General*
- Male
- Age > 75 years

- Working in the health care sector
- Residing in a live stock business
- Working in a live stock business

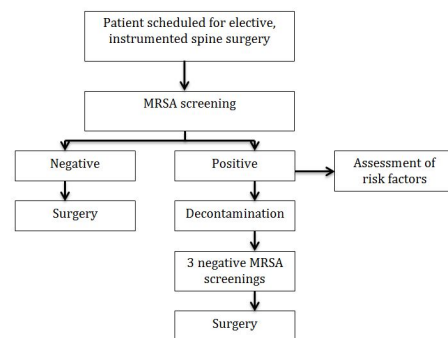
- Previous residence*
- Elderly home
- Transfer within the hospital

- Medical history*
- Hospitalized in the last year
- Surgical intervention in the last year
- Antibiotic use during the last 6 months

- Concomitant diseases*
- Ischemic heart failure
- Tumor
- Diabetes mellitus
- Chronic kidney failure
- Peripheral vascular disease

List of documented risk factors for MRSA carriage

Figure 1



Study flow chart

Results

Out of 1000 screened patients, 13 were MRSA carrier (1.3 %). In 11 patients (85 %), at least one risk factor was present. 'Hospitalization in the previous year' was present in 5 out of 13 carriers. Whereas in the literature, males seem to carry a higher risk, in our study, 77 % of carriers were females. Table 2 gives the number of MRSA carriers per risk factor.

During the whole study period, we encountered two superficial wound infections (0,2 %), but no MRSA infection was noticed in the study group

Table 2

	N/13
Work in healthcare	3
Nursing home	1
Hospitalized	5
Surgery	4
Diabetes	2
Renal failure	1
Antibiotic use	2
Resides on farm	3
Works on farm	2

Number of patients with a risk factor

Number of MRSA carriers per risk factor

Conclusions

The cost of systematic screening may outweigh the potential benefit. However, our data suggest that in patients "at risk" the screening for MRSA and subsequent decolonization, might have a clinical benefit.

References

- Castillo Neyra R, Frisancho JA, Rinsky JL, Resnick C, Carroll KC, Rule AM, Ross T, You Y, Price LB, Silbergeld EK. Multidrug-Resistant and Methicillin-Resistant (MRSA) in Hog Slaughter and Processing Plant Workers and Their Community in North Carolina (USA). Environ Health Perspect. 2014;
- Chen AF, Chivukula S, Jacobs LJ, Tetreault MW, Lee JY. What is the prevalence of MRSA colonization in elective spine cases? Clin Orthop Relat Res. 2012; 470:2684-2689

Learning objectives

At the end of this session participants should be able to identify the risk factors for MRSA carriage in patients scheduled for elective surgery.

Key words: Surgical infections, MRSA, screening, decontamination, risk for MRSA carriage

How will your research influence clinical practice?

Patient scheduled for elective instrumented spine surgery who have one of the risk factors for MRSA carriage should be screened and decontaminated.