SIGNIFICANT DECREASE OF S. AUREUS MEDIASTINITIS POST CARDIAC SURGERY AS RESULT OF MOLECULAR NASAL CARRIER SCREENING AND DECONTAMINATION.

eP043

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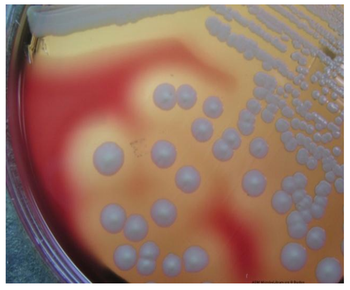


OBJECTIVES

Mediastinitis is the main infectious complication of cardiac surgery. *Staphylococcus aureus* is the most frequent agent involved in these surgical site infections. In 2012, we have implemented a simple and rapid *S. aureus* PCR screening with GeneXpert system (Cepheid®) and we developed a protocol for decontamination of positive patients in the cardiac surgery unit of Poitiers University Hospital, France. In order to assess the impact of this protocol we compared mediastinitis incidence before and after intervention.

METHODS

This repeated cross-sectional before and after study compare *S. aureus* mediastinitis incidence post cardiac surgery during two periods of 18 months with and without protocol of nasal screening and decontamination.

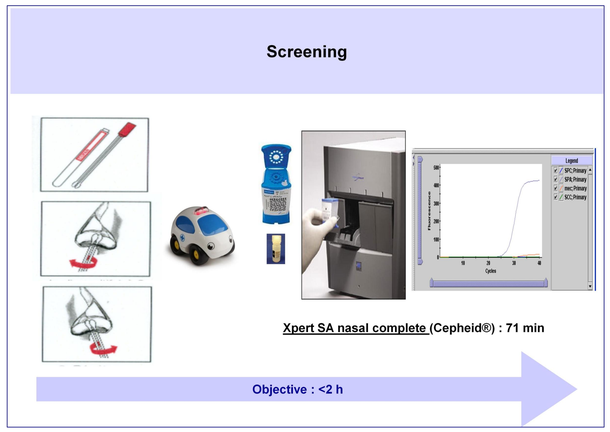
<u>First period from December 2010 to May 2012:</u>

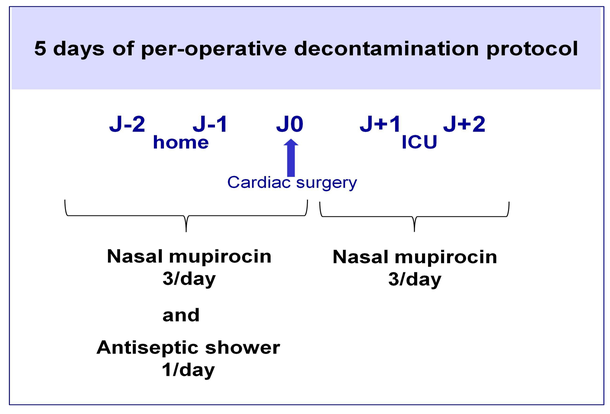
Conventional precautions were prescribed : one antiseptic shower (PVPI scrub or Hibiscrub ®) the day before and the day of surgery.

<u>Second period from June 2012 to November 2013 :</u>

-*Screening of nasal S aureus carrier*: rapid molecular test, Xpert nasal complete (Cepheid®), was used. For elective surgery, nasal swab was collected during pre-operative consultation or the day of admission for urgent surgery.

-*Per-operative decontamination of nasal S. aureus carriers: p*atients start decontamination at home 3 days before surgery with 3 intranasal applications of mupirocin and one antiseptic shower per day or as soon as possible at hospital in case of urgent surgery. After surgery, decontamination treatment is continued in ICU.





Patients with deep sternal wound within 3 months post operation requiring further surgery and at least 6 weeks of antibiotic treatment were defined as mediastinitis cases.

RESULTS

Patients	First period	Second period
Number	679	702
Sex(F/M)	142/537	168/534
Age (years)	67.5	69.6
Surgery		
Coronary artery bypass graft	337	348
Valve surgery	232	212
Combined surgery	91	111
Others	19	32

Over the second period:

82% of cardiac surgery patients were tested (576/702)

- **25% were *S. aureus* carriers (144/576)**
  - **24% of Methicillin-Susceptible -*Staphylococcus aureus* (134)**
  - **1% of Methicillin-Resistant- *Staphylococcus aureus* (10)**

S. aureus* mediastinis rate was significantly decreased *(p= 0.02)
from 1.5% during the first period(10/679)
to 0.3% during the second period (2/702)

CONCLUSIONS

Despite an incomplete screening due to operations carried out in extreme emergency, the introduction of rapid screening for nasal carriage of *S. aureus* by PCR using the GeneXpert combined with per-operative decontamination significantly reduces the risk of post sternotomy mediastinitis. Further economic assessment would be useful to support implementation of this new protocol.

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