Antibiotic consumption to early detect epidemics of *P. aeruginosa* in a burn center: a paradigm shift in the epidemiological surveillance of *P. aeruginosa* nosocomial infections

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**Introduction**

The control of antibiotic resistance and nosocomial infections are major challenges for specialized burn centers. Early detection of those epidemic outbreaks is crucial to limit the human and financial burden.

**Objectives**

We hypothesize that data collected by antibiotic consumption medico-economic surveys could be used as warning signal to detect early nosocomial outbreaks.

**Methods**

A retrospective analysis was conducted including all burn patients staying >48 h on the Lausanne BICU between January 2001 and October 2012 who received systemic therapeutic antibiotics. Infection episodes were characterized according to predefined criteria. Based on the retrospective typing of the strains, we defined a *P. aeruginosa* epidemic above the threshold of 25 infections/1000 burn-days (BD). Antibiotic consumption data, obtained from the quarterly surveillance of drug consumption surveys, were translated into defined daily doses (DDDs).

**Results**

In total, 297 out of 414 burn patients stayed >48h, giving a total of 7458 BD. We identified 610 infection episodes in 189 patients (63.6%). Burn wounds (32.0%), pulmonary (31.1%) and catheter infections (21.8%) were the most prevalent types of infections. The most frequently isolated microorganisms were *P. aeruginosa* (26.2%), *S. aureus* (13.4%) and *C. albicans* (7.0%) (Fig. 1). We observed 3 distinct outbreaks of *P. aeruginosa* infections (2002-2003, 2006 and 2009-2011). These outbreaks correlated with an increase in the DDDs of anti-*Pseudomonas* antibiotics (Spearman’s rho=0.59, p=0.044) (Fig. 2).

**Conclusion**

Our data support a paradigm shift in the epidemiological surveillance of nosocomial *P. aeruginosa* epidemics in burn centers, using the rise in antibiotic consumption as an early trigger to initiate the molecular typing of *P. aeruginosa* strains and the reinforcement of standard infection control procedures.

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**References**


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Disclosure of Interest: None Declared