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Research paper

Incidence of healthcare-associated infections in intensive care of the emergency department of Oran in Algeria

Soumia Benbernou[1]*, Nabil Ghomari[1], Faouzia Kambbouche[2], , Rabah Kouadria[3]

[1]*Department of anesthesia-intensive care, university hospital center of Mostaganem, faculty of medicine of Mostaganem –Algeria*

[2]*Department of Pulmonology, university hospital center of Mostaganem, faculty of medicine of Mostaganem –Algeria*

[3]*Department of neurosurgery ,university hospital center of Mostaganem, faculty of medicine of Mostaganem –Algeria*

**Corresponding author E-mail:gsoumia@hotmail.com*

Abstract

Introduction. Healthcare-associated infections (HAIs) are a serious problem of modern medicine. Patients hospitalized in intensive care units (ICUs) develop HAI significantly more often than patients in other hospital units.

Materials and Methods.
We carried out a retrospective study spread over 2 years from January 2019 to December 2021. Data were collected on a form established with the microbiology department of the the University Hospital center of Oran, sites of nosocomial infection, germs involved, antibiotic resistance.
Results: 886 samples were collected during the study period, of which 660 were positive. 270 patients were admitted to hospital during this period. The average age of our patients was 39.4 years. The most frequently isolated bacteria were *Klebsiella pneumoniae* ,*Acinetobacter baumannii* ,*Staphylococcus aureus* ,and *Escherichia coli* .

Conclusion Infection control based on incidence rate for each type of infection is necessary in ICU to assess the epidemiological situation.

Keywords: Healthcare-associated infections, Gram-negative infections, Pneumonia, Urinary tract infections.

1. Introduction

Healthcare-associated infections (HAIs) have become a public health problem, posing an unacceptable risk to hospitalized patients.

2. Definition

HCAI is defined as an infection contracted in an intensive care unit when it was neither present nor incubating on admission. A delay of at least 48 hours between admission and the infectious state is considered (1): Pulmonary, urinary, catheter-related infections, abdominal and surgical site,ocular.
Objective of the communication: To describe the incidence of nosocomial infections among intensive care unit patients at the Oran University Hospital.

3. Material and method

We carried out a retrospective study spread over 2 years from January 2019 to December 2021. Data were collected on a form established with the microbiology department of the CHU Oran using the whonet software (V5.6). The main items of the study are: Age, sex, entry diagnosis, sites of nosocomial infection, germs involved, antibiotic resistance.

4. Results

886 samples were collected during the study period, of which 660 were positive. 270 patients were admitted to hospital during this period. The average age of our patients was 39.4 years.

4.1. Diagnosis

56% polytrauma
27% Cerebrovascular accidents
07% metabolic complications
06% drug intoxication
03% Post-operative peritonitis
The incidence of nosocomial infections was 36% (98 patients).

4.2. Distribution by site

healthcare-related infections

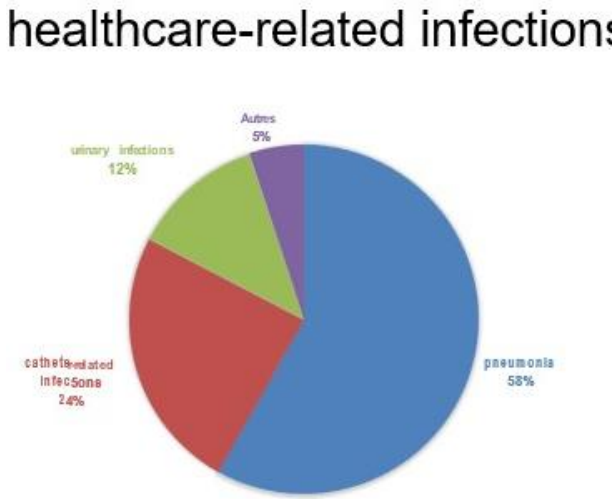

Fig. 1: The Different Sites of Healthcare-Associated Infections January 2019 to December 2021 CHU Oran.

We found that 58% of patients had ventilator-associated pneumonia, 24% had catheter-related infections and 12% had urinary tract infections.
Finally, we reported 05% of infections linked to other sites.

4.3. Breakdown by isolated germ

82% of gram-negative infections are led by pseudomonas, followed by acinetobacterbaumanii and entrobacteria.
Pseudomonas was resistant to ceftazidime in 19.2% and to imipenem in 14.7%. A.Baumanii was resistant to imipenem in 55%, ciprofloxacin 91% and amikacin 75%. The second family of bacteria was represented by gram-positive cocci (13%).
All these results are illustrated in Figure 2.

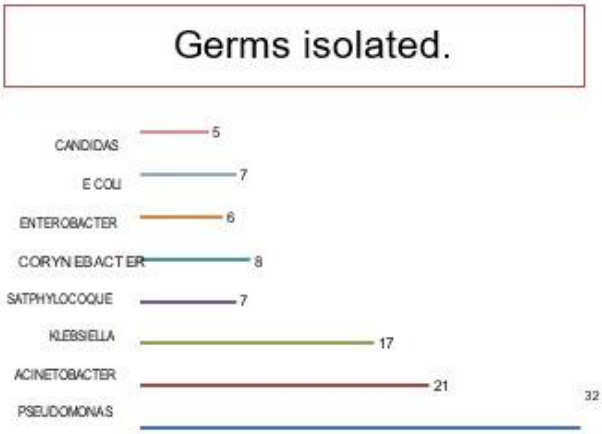

Fig. 2: Isolated germs.

January 2019 to December 2021 CHU Oran

4.4. Length of stay

The occurrence of infection significantly prolonged the length of stay:25.5±18daysininfected patients compared with 12 ± 7 in non-infected patients ($p < 0.01$).

5. Discussion

The population studied was young, predominantly male and without antecedents. Pneumonia were more frequent in our series than in Vincent's study published in JAMA in 1995 (2).
Urinary tract infections are less frequent (12% compared with 18%) (Vincent,JAMA1995)
The most common germs found were gram-negative bacilli, followed by gram-positive cocci, which is consistent with the literature.
However, Pseudomonas is in first place, followed by Acinetobacter baumanii, which poses a serious problem of multi-resistance, leading to fears of total resistance in the near future(3).

6. Conclusion

Hospital-acquired infections are an inescapable fact of life, and their control can only be achieved through knowledge of their aetiologies and the application of optimum prevention measures.
Paramedical staff should be trained by specialised teams.

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