# ABSTRACT

## Introduction

*Staphylococcus epidermidis* is the leading cause of hospital-acquired infections, mostly associated with the use of medical devices in seriously ill or immunocompromised patients. Biofilm formation and methicillin resistance are the most important factors for the establishment of *S. epidermidis* as a nosocomial pathogen. Currently, the characteristics of *S. epidermidis* in the hospital environment in our country are unknown.

## Materials and methods

In this study, we examined a total of 100 *S. epidermidis* isolates collected from hospitalized patients, using both molecular (the staphylococcal cassette chromosome *mec* (SCC*mec)* typing and the presence of *ica*ADBC gene and IS256 insertion sequence) and phenotypic (detection of antibiotic resistance profile and biofilm-formation) methods.

## Results

Resistance to methicillin was seen in 66% (n = 66) of isolates. All isolates were susceptible to vancomycin and linezolid. The prevalence of resistance to antibiotics tested was as follows: fusidic acid (37%), gentamicin (58%), ciprofloxacin (61%), clindamycin (80%), erythromycin (85%) and trimethoprim / sulfamethoxazole (86%). Multidrug resistance (MDR) phenotype was detected in 66% (n = 66) of isolates. Among *mec*A positive isolates, SCC*mec* type IV was the most prevalent type ( 44% , n = 29 ), followed by type I (25% , n =18 ), type II (7% , n = 5 ) and type III (7%, n = 5). Additionally, 14 isolates (21%) were nontypeable for SCC*mec.* The most isolates carrying *ica* operon and IS*256* insertion sequence as well as the most MDR isolates harbored SCC*mec* type IV.

## Conclusion

The high rate of methicillin resistance and MDR phenotype is alarming. It seems that the combination of these two genetic elements (*ica* operon and IS*256)* with antibiotic resistance and the ability to biofilm formation mostly in SCC*mec* type IV, lead to success of this type in the establishment of *S. epidermidis* infections.

**Key words**: Antibiotic resistance; Biofilm; Staphylococcal cassette chromosome *mec*, *Staphylococcus epidermidis*