PREVALENCE AND ANTIBIOTIC SENSITIVITY PATTERNS OF METHICILLIN-RESISTANT AND METHICILLIN-SENSITIVE *Staphylococcus aureus* IN DOGS IN IBADAN, NIGERIA

University of Ibadan

Emmanuel OLAYIWOLA[1], Victoria ADETUNJI[1], Oluwatobi FASIKU[1], Olayemi OKUNLADE[1], Temidayo OMOBOWALE[2], Peace OJEADE[1], Precious OLADIPO[1], Adebayo AWOYELE[1]

[1]Department of Veterinary Public Health and Preventive Medicine

[2]Department of Veterinary Medicine

BACKGROUND

Staphylococcus aureus is among the leading causes of bacterial infections worldwide. Methicillin-resistant *Staphylococcus aureus* (MRSA), which is of public health importance, is gaining interest in veterinary medicine due to its zoonotic potential. Dogs are a major reservoir for zoonotic-infection-causing bacteria, including MRSA. This study investigated the prevalence of MRSA and MSSA in dogs in Ibadan, Oyo State, Nigeria, and determined their antibiotic resistance patterns.

MATERIALS AND METHODS

A total of 173 nasal swab samples were collected from dogs in residential areas of Ibadan, Nigeria. *S. aureus* was isolated using standard microbiological procedures. Furthermore, Antibiotic Sensitivity Testing was performed using the Kirby–Bauer disc diffusion method. The data obtained were analysed using descriptive statistics.

Sample Collection Process

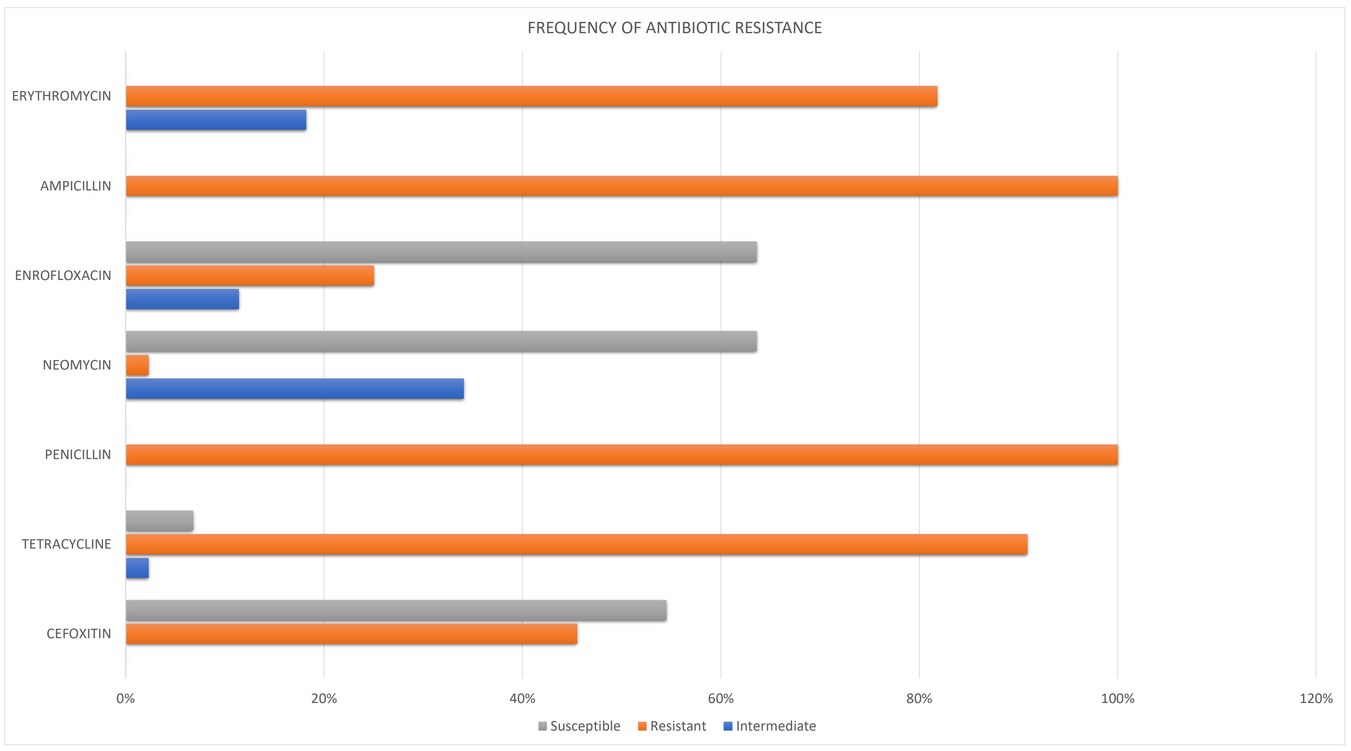
Eleyele river

ASEJIRE river

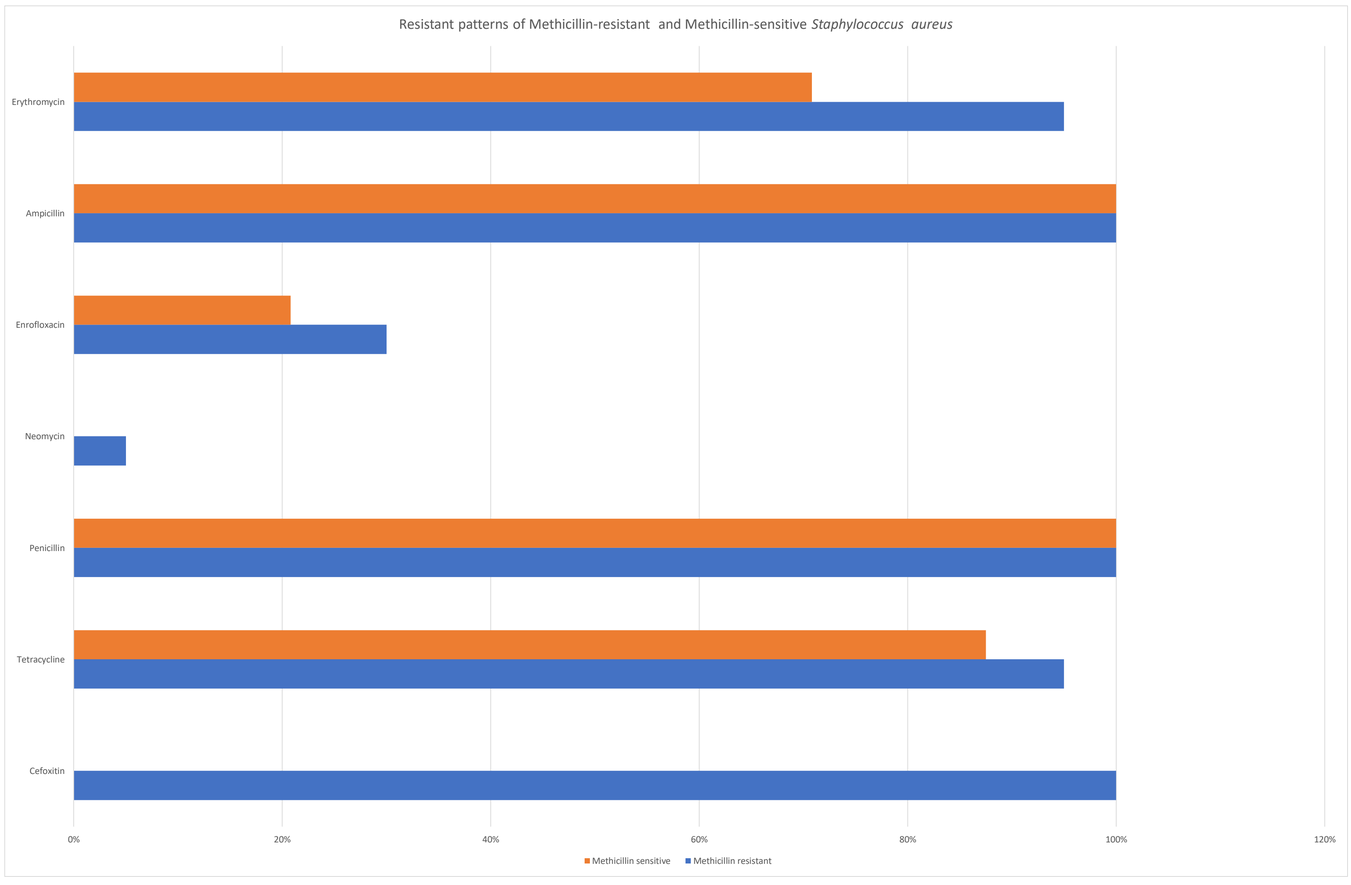
RESULTS

Overall, the prevalence of *Staphylococcus aureus* was 44/173 (25.4%). The prevalence of MRSA was 11.6% (20/173), while that of MSSA was 13.9% (24/173). Also, the frequency of antibiotic resistance in the MRSA (75%) isolates was higher than that in the MSSA (59.5%) isolates.

The antibiotic susceptibility profiles revealed a high prevalence of multidrug resistance, MDR (79.5%; 35/44), and Extensive Drug Resistance, XDR (11.4%; 5/44), in all S. aureus isolates. Additionally, 100% (20/20) of MRSA and 66.7% (16/24) of MSSA showed MDR. Also, 25% (5/20) of MRSA and none of the MSSA showed XDR. This study revealed five different MRSA antibiotypes, where FOX-TE-P-AMP-E, at 60% (12/20), was predominant; likewise, five different MSSA antibiotypes were found, and TE-P-AMP-E, at 45.8% (11/24), was predominant.



Antibiotic Resistance Profile of *S. aureus* isolates from dogs within Ibadan, Nigeria



Resistance Pattern of Methicillin-resistant and Methicillin-sensitive *S. aureus* isolates from dogs within Ibadan, Nigeria

CONCLUSION

The high multidrug resistance and the occurrence of MRSA and MSSA are evidence of continuous antimicrobial exposure, indiscriminate access to and use of antibiotics, and a dense urban population, making the transfer and acquisition of resistance genes easy. It is strongly advised to implement and enforce infection control measures and promote responsible antibiotic usage at all levels to enhance overall public health outcomes.