Summary brief **13 September 2021**

Methicillin resistant bacteria: A cause of concern in Nepal

Methicillin Resistant Staphylococcus aureus (MRSA) is a subgroup of *Staphylococcus aureus* that are resistant to beta lactam antibiotics and most of the other classes of antibiotics

ACCESS: group of antibiotics that have activity against a wide range of commonly encountered susceptible pathogens and also shows lower resistance potential than antibiotics in the other group

WATCH: group includes antibiotic classes that have higher resistance potential

RESERVE: group includes antibiotics that should be reserved for treatment of confirmed or suspected infections due to multi-drug-resistant organisms.

Key Messages

- Methicillin Resistant *Staphylococcus aureus* (MRSA) were prevalent in our setting. They were more prevalent in outpatients than in inpatients.
- MRSA were resistant to oral antibiotics like Clindamycin, Ciprofloxacin, Ofloxacin and even to injectable antibiotic like Gentamicin.
- The majority of MRSA were sensitive to cheaper and commonly available antibiotics like chloramphenicol and cotrimoxazole.

What is the problem and why is it important?

MRSA are normally found on the skin and in the nose. It spreads through direct contact with an infected wound or from the contaminated hands of healthcare providers. MRSA are resistant to oxacillin as well as most of the other classes of antibiotics. It may lead to increased morbidity and mortality, prolonged hospitalization and increased treatment costs for patients.

How did we measure it?

Prevalence of MRSA in patients with *S. aureus* and their antibiotic sensitivity pattern was studied among patients attending Patan hospital from January 2018 to December 2020. Secondary data were reviewed from the electronic database obtained from hospital information system and patient files archived at the record section of the hospital. Data was analysed and present in frequencies and percentages

What did we find?

- Out of 1,14,137 samples cultured, 1804 *Staphylococcus aureus* were isolated and tested for antibiotic sensitivity from patients visiting Patan hospital during 3 years .
- More than half of the patients (57%) with *Staphylococcus aureus* infection had MRSA.
- MRSA were more prevalent among outpatients (66.2%) than among inpatients (27.6%).

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MRSA were resistant to most of the tested antibiotics in the first and second treatment choice of the Access group (Clindamycin, Gentamicin), and to those that are more prone to be a target of antibiotic resistance (Ciprofloxacin, Ofloxacin), belonging to the Watch group. However, the majority of MRSA responded to two antibiotics within the Access group: chloramphenicol (89%) and cotrimoxazole (71%). (See the AWaRe classification in blue box on the left.)

Implications

MRSA is prevalent in the hospital. It spreads in the hospital and community and may result in increased morbidity and mortality, prolonged hospitalization and increased treatment cost to the patients. Treatment of patients should be based on the antibiotic sensitivity results, otherwise the treatment may not work.

As MRSA is prevalent in this setting, adequate implementation, monitoring and supervision of infection prevention and control measures are needed.

Most of the MRSA were sensitive to cheaper and commonly available antibiotics like cotrimoxazole and cholramplenicol, so more expensive and toxic antibiotics are not needed.