



SYSTEMATIC LITERATURE REVIEW :
PREVALENSI *METHICILLIN-RESISTANT*
***STAPHYLOCOCCUS AUREUS* (MRSA) TERHADAP**
INFEKSI NOSOKOMIAL DI BEBERAPA NEGARA
ASIA
SKRIPSI

Untuk Memenuhi Persyaratan
Memperoleh Gelar Sarjana Kedokteran



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PROGRAM STUDI KEDOKTERAN
FAKULTAS KEDOKTERAN
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RINGKASAN

Adina Fitria. Fakultas Kedokteran, Universitas Islam Malang, Januari 2021. *Systematic Literature Review: Prevalensi Methicillin Resistant Staphylococcus aureus* (MRSA) terhadap infeksi Nosokomial di beberapa Negara Asia. **Pembimbing 1:** dr. H.R.M. Hardadi Airlangga Sp.PD. **Pembimbing 2:** dr. Dhanty Erma Widiyasi, Sp.Rad

Pendahuluan: Infeksi *Methicillin Resistant Staphylococcus aureus* (MRSA) adalah infeksi nosokomial yang menjadi masalah dunia dengan angka mortalitas dan morbiditas yang tinggi. Asia adalah kawasan dengan prevalensi > 50% infeksi MRSA yang merupakan tertinggi di seluruh dunia. *Systematic literature review* ini bertujuan untuk mengetahui prevalensi di beberapa Negara Asia tahun 2015-2020.

Metode: *Systematic Literature Review* mengenai Prevalensi *Methicillin Resistant Staphylococcus aureus* (MRSA) terhadap infeksi Nosokomial di Asia yang dilakukan pencarian melalui database Pubmed dan *Scencedirect* dengan memasukkan kata kunci berupa *Methicillin Resistant Staphylococcus aureus* (MRSA), *nosocomial infection, prevalence, ASIA*. Jurnal dipilih sesuai kriteria inklusi dan kriteria eksklusi yang telah ditetapkan.

Hasil: Sejumlah 11 jurnal terpilih ditelaah sesuai dengan kriteria inklusi dan eksklusi. Berdasarkan hasil telaah diperoleh bahwa prevalensi MRSA di Negara Iran 86,4% ; 51,9% ; 33,8% , Taiwan 26,4%, Pakistan 11,5%, Malaysia 59%, Nepal 55,6%, Singapura 38,5-48,1%, Palestina 25,5%, Cina 17,3%, dan Pakistan 0,7% dan 2,7%.

Kesimpulan: Prevalensi MRSA terhadap infeksi nosokomial Asia tertinggi terjadi di Negara Iran sebesar 84,6% dengan lokasi di ICU. Hasil prevalensi di beberapa Negara di Asia disebabkan oleh perbedaan lokasi dan cara pengambilan sampel, jumlah peserta penelitian serta jenis rumah sakit mempengaruhi hasil akhir dari prevalensi. Pola kerentanan antibiotik pada MRSA paling banyak sensitif dengan antibiotik Vancomycin.

Kata Kunci: *Methicillin Resistant Staphylococcus aureus* (MRSA), *nosocomial infection, prevalence, ASIA*



SUMMARY

Adina Fitria. Faculty of Medicine, University of Islam Malang, January 2021. Systematic Literature Review: Prevalence of Methicillin Resistant Staphylococcus aureus (MRSA) against nosocomial infections in several Asian countries. **Supervisor 1:** H.R.M Hardadi Airlangga. **Supervisor 2:** Dhanty Erma Widiiasi.

Introduction: Methicillin Resistant Staphylococcus aureus (MRSA) infection is a nosocomial infection which is a world problem with high mortality and morbidity rates. Asia is a region with a prevalence of > 50% of MRSA infections which is the highest in the world. This systematic literature review aims to determine the prevalence in several Asian countries in 2015-2020.

Methods: Systematic Literature Review regarding the Prevalence of Methicillin Resistant Staphylococcus aureus (MRSA) against Nosocomial infections in Asia which was searched through the Pubmed and Sciencedirect databases by entering keywords in the form of Methicillin Resistant Staphylococcus aureus (MRSA), nosocomial infection, prevalence, ASIA. Journals are selected according to the inclusion criteria and exclusion criteria that have been set.

Results: A total of 11 selected journals were reviewed according to inclusion and exclusion criteria. Based on the results of the study, it was found that the prevalence of MRSA in Iran is 86.4%; 51.9%; 33.8%, Taiwan 26.4%, Pakistan 11.5%, Malaysia 59%, Nepal 55.6%, Singapore 38.5-48.1%, Palestine 25.5%, China 17.3%, and Pakistan 0.7% and 2.7%.

Conclusion: The highest prevalence of MRSA against Asian nosocomial infections occurred in Iran at 84.6% with locations in the ICU. The prevalence results in several countries in Asia are caused by differences in the location and method of sampling, the number of study participants and the type of hospital affecting the outcome of prevalence. The pattern of antibiotic susceptibility in MRSA was most sensitive to the antibiotic Vancomycin.

Keywords: Methicillin Resistant Staphylococcus aureus (MRSA), nosocomial infection, prevalence, ASIA

BAB I

PENDAHULUAN

1.1 Latar Belakang

Infeksi *Methicillin Resistant Staphylococcus aureus* (MRSA) adalah infeksi nosokomial yang menjadi masalah dunia dengan angka mortalitas dan morbiditas yang tinggi (Moller *et al.*, 2019). Asia adalah kawasan dengan prevalensi > 50% infeksi MRSA yang merupakan tertinggi di seluruh dunia (Sit *et al.*, 2017). Jurnal *Review* sebelumnya yang meneliti prevalensi MRSA di beberapa Negara Asia menyebutkan hasil keseluruhan prevalensi MRSA adalah 67% dari total keseluruhan isolat *S.aureus* (Song *et al.*, 2011).

Staphylococcus aureus merupakan flora normal kulit dan saluran pernafasan atas sehingga mudah menginfeksi manusia. Selain itu, transmisi bakteri ini dapat melalui kontak langsung atau melalui *device related infection* (Rasigade & Vandenesch, 2014). *Staphylococcus aureus* adalah bakteri patogen yang berpotensi resisten terhadap beberapa antibiotik (Eckburg *et al.*, 2019).

Resistensi antibiotik terjadi akibat pemberian antibiotik yang tidak adekuat pada bakteri. Bakteri menghasilkan enzim untuk menghambat kerja antibiotik sehingga antibiotik tidak efektif (Boucher & Corey, 2008). Pada *S.aureus* yang telah berkembang menjadi *Methicillin Resistant Staphylococcus aureus* (MRSA) memiliki kemampuan untuk menghambat ikatan beta laktam di dinding sel bakteri (Thakuria & Lahon, 2013). Proses ini terjadi akibat mutasi gen *mecA* yang mengkode *penicillin*

binding protein (PBP) menjadi PBP2A yang memiliki afinitas rendah terhadap gugus beta laktam antibiotik (Shahkarami *et al.*, 2014).

Tingginya prevalensi MRSA menyebabkan meningkatnya morbiditas dan mortalitas pasien. Pembahasan tentang prevalensi MRSA diperlukan untuk pencegahan dan evaluasi pengobatan. Oleh sebab itu, perlu *systematic literature review* yang membahas tentang prevalensi MRSA di Asia.

1.2 Rumusan Masalah

1. Berapa prevalensi MRSA di Asia pada tahun 2015-2020 ?
2. Dimana lokasi dengan risiko tinggi terjadinya MRSA ?
3. Bagaimana pola sensitivitas antibiotik terhadap MRSA di Asia ?

1.3 Tujuan Penelitian

1. Mengetahui prevalensi MRSA di Asia pada tahun 2015-2020.
2. Mengetahui lokasi dengan risiko tinggi terjadinya MRSA.
3. Mengetahui pola sensitivitas antibiotik terhadap MRSA di Asia ?

1.4 Manfaat Penelitian

1.4.1 Manfaat Teoritis

1. Sebagai landasan referensi ilmiah dan referensi penunjang tentang prevalensi MRSA di Asia dengan menampilkan rangkuman hasil telaah dari jurnal internasional terakreditasi.



1.4.2 Manfaat Praktis

1. Menjadi landasan pengembangan selektif dalam penggunaan antibiotik sebagai terapi efektif berguna untuk pengurangan kasus MRSA.



BAB VII

PENUTUP

7.1 Kesimpulan

Prevalensi MRSA terhadap infeksi nosokomial Asia tertinggi terjadi di Negara Iran sebesar 84,6% dengan lokasi di ICU. Hasil prevalensi di beberapa Negara di Asia disebabkan oleh perbedaan lokasi dan cara pengambilan sampel, jumlah peserta penelitian serta jenis rumah sakit mempengaruhi hasil akhir dari prevalensi. Pola kerentanan antibiotik pada MRSA paling banyak sensitif dengan antibiotik Vancomycin.

7.2 Saran

Melakukan penelitian *systematic literature review* dan penelitian epidemiologi mengenai prevalensi MRSA terhadap infeksi nosokomial di Negara Asia.

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