

IDSA Issues First Guidelines for Treatment of MRSA

MRSA คือตัวย่อของเชื้อก่อโรค methicillin-resistant *Staphylococcus aureus* ซึ่งเป็นแบคทีเรียแกรมบวกที่สามารถต่อต้านยาฆ่าเชื้อตระกูล methicillin และก่อโรคได้หลายชนิด ทั้งที่เป็นโรครุนแรงซึ่งนำมาสู่การเสียชีวิตเนื่องจากไม่มียารักษาที่ได้ผล เช่นโรคติดเชื้อในกระแสเลือด เยื่อหุ้มหัวใจอักเสบ (endocarditis) ปอดอักเสบ (pneumonia) หรือโรคไม่รุนแรงแต่ก็ยากต่อการรับมือ อาทิโรคติดเชื้อที่ผิวหนัง (skin and soft tissue infections: SSTIs) เป็นต้น

ด้วยเหตุนี้สมาคมโรคติดเชื้อแห่งสหรัฐอเมริกา หรือ The Infectious Diseases Society of America (IDSA) จึงได้เผยแพร่คำแนะนำ (clinical practice guidelines) ผ่านทางวารสาร Clinical Infectious Disease (CID) ฉบับเดือนมกราคม 2554 เพื่อให้การรักษาโรคที่เกิดจาก MRSA มีมาตรฐานและลดปัญหาจากการใช้ยาที่ไม่เหมาะสม อันเป็นรากของปัญหาเชื้อดื้อยาในปัจจุบัน เนื้อหาโดนสังเขปมีดังต่อไปนี้

- MRSA infections were primarily healthcare associated, but by the mid-1990s, the incidence of community-acquired MRSA infections in otherwise healthy persons in the community started to increase, according to Herold and colleagues in the February 25, 1998, issue of the *Journal of the American Medical Association*.
- In a study of emergency department patients reported by Moran and colleagues in the August 17, 2006, issue of the *New England Journal of Medicine*, the most common cause of SSTIs was community-acquired MRSA. Other illnesses caused by MRSA include bacteremia and endocarditis, pneumonia, bone and joint infections, central nervous system disease, and toxic shock and sepsis syndromes.
- The IDSA Standards and Practice Guidelines Committee convened infectious diseases experts to review and analyze the evidence on MRSA management. These clinical practice guidelines by the IDSA provide recommendations for the management of MRSA SSTIs, bacteremia and endocarditis, pneumonia, bone and joint infections, and central nervous system infections as well as vancomycin dosing and alternatives. Recommendations were based on review of data

published in PubMed from 1961 through 2010, abstracts from national meetings, and expert opinion.

- **SSTIs**

- The primary treatment of cutaneous abscess is incision and drainage.
- Antibiotic treatment is recommended for abscess associated with severe disease, rapid progression with cellulitis, systemic illness, comorbidities or immunosuppression, extremes of age, areas difficult to drain, septic phlebitis, and poor response to incision and drainage.
- Purulent cellulitis should be treated empirically for MRSA whereas nonpurulent cellulitis should be treated empirically for β -hemolytic streptococci.
- Oral antibiotic options for community-acquired MRSA are clindamycin, trimethoprim-sulfamethoxazole, a tetracycline, or linezolid for 5 to 10 days.
- Hospitalized patients should receive surgical debridement, broad-spectrum antibiotics, and empiric MRSA treatment (intravenous vancomycin, oral or intravenous linezolid, daptomycin, telavancin, or clindamycin) for 7 to 14 days.
- In children, minor infections can be treated with topical mupirocin and complicated infections with vancomycin.

- **Recurrent MRSA SSTIs**

- Preventive measures include personal and environmental hygiene, decolonization, and treatment of symptomatic contacts or asymptomatic household contacts.

- **Bacteremia and infective endocarditis**

- Vancomycin or daptomycin is recommended to treat uncomplicated bacteremia for at least 2 weeks, complicated bacteremia for 4 to 6 weeks, and infective endocarditis for 6 weeks.
- Echocardiogram is recommended for adults with bacteremia and children at risk for endocarditis.

- In children with bacteremia and infective endocarditis, vancomycin is recommended for 2 to 6 weeks.

- **Pneumonia**

- Empiric community-acquired MRSA treatment with intravenous vancomycin, oral or intravenous linezolid, or oral or intravenous clindamycin is recommended for 7 to 21 days in those in intensive care, those with necrotizing or cavitary infiltrates, or those with empyema.

- **Bone and joint infection**

- The primary treatment of osteomyelitis and septic arthritis is surgical debridement and drainage.
- Antibiotic options are vancomycin, daptomycin, trimethoprim-sulfamethoxazole plus rifampin, linezolid, and clindamycin.
- Treatment duration is at least 8 weeks for osteomyelitis in adults and 4 to 6 weeks in children and 3 to 4 weeks for septic arthritis in adults or children.

- **Central nervous system**

- Recommended treatment includes at least 2 weeks of intravenous vancomycin for meningitis and removal of infected shunts.
- For brain abscess, subdural empyema, spinal epidural abscess, and septic thrombosis of cavernous or dural venous sinus, the treatment is evaluation for incision and drainage and intravenous vancomycin for 4 to 6 weeks, possibly with rifampin.

- **Adjunctive therapy**

- Protein synthesis inhibitors and intravenous immunoglobulin might be used in certain cases.

- **Vancomycin dosing**

- The dose for intravenous vancomycin is 15 to 20 mg/kg/dose up to 2 g/dose every 8 to 12 hours in adults and 15 mg/kg/dose every 6 hours in children.

- The recommended serum trough level before the fourth or fifth dose is 15 to 20 $\mu\text{g}/\text{mL}$.
 - In adults, monitoring of the peak vancomycin level is not recommended.
 - Use of trough vancomycin concentrations of 15 to 20 $\mu\text{g}/\text{mL}$ require further study in children, but should be considered in those with serious infections.
 - For most SSTIs, the vancomycin dose is 1 g every 12 hours, and trough levels are not needed for most adult patients.
- **Vancomycin susceptibility**
 - If the vancomycin minimum inhibitory concentration is more than 2 $\mu\text{g}/\text{mL}$ or clinical response is poor, then an alternative is recommended.
- **Persistent bacteremia and vancomycin treatment failures**
 - Recommended treatment is removal of other infection foci, drainage or surgical debridement, high-dose daptomycin plus another agent, or quinupristin-dalfopristin, trimethoprim-sulfamethoxazole, linezolid, or telavancin.
- **Neonates**
 - Full-term neonates with mild localized disease can be treated with topical mupirocin.
 - Premature or very-low-birth-weight infants with localized disease or full-term infants with extensive disease can be treated with intravenous vancomycin or clindamycin.
 - Clinical Implications
 - The recommended treatment of MRSA SSTIs includes incision and drainage, oral antibiotics for 5 to 10 days, or intravenous antibiotics for 7 to 14 days, depending on the severity of infection.
 - The recommended intravenous vancomycin dose for MRSA infection is 15 to 20 mg/kg/dose up to 2 g/dose every 8 to 12 hours for adults and 15 mg/kg/dose every 6 hours in children. Trough vancomycin levels before

the fourth or fifth dose are the most accurate method to determine dosing
in adult patients.

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