وزارة الصحة
Ministry of Health
الإدارة العامة للرعاية الصيدلية

Skin and soft tissue Infection Management Protocol

Abbreviation

IV: intravenous
IM: intramuscular
SC, SQ: subcutaneous
PO: oral
Min: minute
hr: hour
d: day
mo: month
q24hr: every 24 hours
q12hr: every 12 hours
q8hr: every 8 hours
q6hr: every 6 hours
q4hr: every 4 hours
mcg: microgram
mg: milligram
kg: kilogram
MDR: multi-drug resistance
MRSA: methicillin resistance staph. aureus
TMP/SMZ DS: Trimethoprim-sulfamethoxazole double strength
TMP/SMZ SS: Trimethoprim-sulfamethoxazole single strength

Introduction

More than half of all antibiotics given to treat active infections in hospitals are prescribed for three infections where there are important opportunities to improve use: lower respiratory tract infection (pneumonia), urinary tract infection and skin and soft tissue infection (according to MOH hospitals reports). Availability of protocol and system to monitor the adherence is most important strategies to ensure that the use of antimicrobial in hospital setting is appropriately

Purpose: To help the MOH hospitals during establishment of Antimicrobials Stewardship Program at hospital settings

Aim and scope: The protocol is intended to provide guidance on the safe and cost-effectiveness treatment of most common community and hospital acquired infections and to decrease the antimicrobial resistance. For hospital acquired infection the choice between the recommended agents should be based on local resistance data (antibiogram)

Targeted population: Hospitalized immunocompetent patients who are diagnosed with Skin and soft tissue infection

Targeted end users: Physicians**,** Pharmacists/clinical pharmacists, and Nurses

Setup: Inpatient setting

Methodology:

Phase I: In 2014 the Antibiotic committee under the General Administration of Pharmaceutical Care developed the antimicrobial guideline by reviewing and adopting international guideline (Infectious Disease Society of America, American Thoracic Society, American Society of Health-System Pharmacists and European Society of Clinical Microbiology and Infectious Diseases) to cover 20 infectious diseases.

Phase II: In 2016, collaboration with General Administration of infection control a group of infectious disease consultants reviewed this guideline

Phase III: In 2020 The specific indications were agreed by Antimicrobial Stewardship Program central team to be implemented and monitored in MOH hospitals as a strategy. For this reason, the Skin and soft tissue infections section updated by specialized clinical pharmacists according to recent international guideline, literature and MOH formulary and then reviewed by infectious disease consultants.

Conflict of interest: This protocol developed based on valid scientific evidence, critical assessment of that evidence, and objective clinical judgment that relates the evidence to the needs of practitioners and patients. No financial relationships with pharmaceutical, medical device, and biotechnology companies.

Funding: No fund was provided

Updating:

First version of this protocol created in 2020. The protocol will be updated every three years or if any changes or updates released by international/national guidelines, pharmacotherapy references or MOH formulary

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Skin and Soft Tissue Infection

Purulent skin and soft tissue infections' symptoms severity definitions:
Mild: without systemic signs of infection
Moderate:

- Systemic signs of infection such as temperature higher than 38ºC, heart rate higher than 90 beats/minute, respiratory rate higher than 24 breaths/ minute, or WBC higher than 12 x 10^3 cells/mm^3
- Patient with comorbidities

Severe:

- Systemic signs of infection such as temperature higher than 38ºC, heart rate higher than 90 beats/minute, respiratory rate higher than 24 breaths/ minute, or WBC higher than 12 x 10^3 cells/mm
- Immunocompromise
  Organ dysfunction (septic shock)
- Systemic inflammatory response syndrome (SIRS).
- Clinical signs of deeper infection
- Infection that fails to improve with incision and drainage plus oral antibiotics.

(Purulent Skin and Soft Tissue Infections (Furuncle/Carbuncle/Abscess) Non-Diabetic

Patient group	Therapy (Dosing Regimen)			
Suspected microorganism Streptococcus pyogenes or Staphylococcus aureus (rare)	**Mild**			Incision and drainage are indicated in all cases
	Empirical/ definitive Therapy 1❒ Incision and drainage only			
	Moderate (7–10 days)			
	Empirical Therapy	1❒ 2❒ 3❒	Clindamycin 600-900mg IV q8hr Doxycycline 100 mg q12hr Trimethoprim-sulfamethoxazole (160/800 mg [DS] PO q12hr	
	Severe (10-14 days)			
	Empirical Therapy	1❒ 2❒	Vancomycin 15mg/kg IV q8hr Linezolid 600mg IV q12hr	
	Definitive Therapy	1❒ 2❒ 3❒ 4❒	**MRSA** Clindamycin 600-900mg IV q8hr Doxycycline 100 mg q12hr Trimethoprim-sulfamethoxazole (160/800 mg [DS] PO q12hr Vancomycin 15mg/kg IV q8hr Linezolid 600mg IV q12hr	

		5❒		
		1❒ 2❒ 3❒ 4❒	**MSSA** Flucloxacillin 1–2 gm IV q4-6hr Cloxacillin 1-2 g IV q6hr Cefazoline 1-2 g IV q8hr Clindamycin 600-900mg IV q8hr	

(Non-purulent Skin and Soft Tissue Infections (Necrotizing infection/Cellulitis/Erysipelas)

Non-Purulent skin and soft tissue infections' symptoms severity definitions:
Mild: without systemic signs of infection
Moderate: Systemic signs of infection such as temperature higher than 38ºC, heart rate higher than 90 beats/minute, respiratory rate higher than 24 breaths/ minute, or WBC higher than 12 x 10^3 cells/mm^3
Severe: For patients whose cellulitis is associated with penetrating trauma, evidence of MRSA infection elsewhere, nasal colonization with MRSA, injection drug use, or SIRS

Patient group	Therapy (Dosing Regimen)	
Mild (outpatient)		
Empirical Therapy	1❒ 2❒ 3❒	**Five days' regimen** Cephalexin 500 mg PO q6hr Doxycyclin 100 mg q12hr Amoxicillin-clavulanic 1g PO q12hr
Moderate (inpatient)		
Empirical Therapy	1❒ 2❒ 3❒	**7-10 days' regimen** Ceftriaxone 1g IV q24 hr Cefazolin 1-2g IV q8hr Clindamycin 600-900mg IV q8hr
Severe		
Empirical Therapy	1❒	**7-10 days' regimen** Vancomycin 15mg/kg q12hr + Piperacillin-Tazobactam 3.375mg IV q6h r **If Necrotizing infection: add clindamycin**

(Bite wound infections)

Patient Groups	Therapy (Dosing Regimen)		
Bite wound infections		**Seven days' regimen**	
	1❒	Amoxicillin-clavulanic 1g PO q12hr	
	2❒	Doxycycline 100–200mg PO q 12hr	
	3❒	Cefuroxime axetil 500mg PO q12hr + metronidazole 250–500 mg PO q8hr	
		Tetanus toxoid should be administered to patients without toxoid vaccination in the previous 10 years. The tetanus, diphtheria, and acellular pertussis vaccine is preferred for patients who have not received a pertussis-containing vaccine as adults	

References:

1. DennisL.Stevens,1 AlanL.Bisno. Practice Guidelines for the Diagnosis and Management of Skin and Soft Tissue Infections: 2014 Update by the Infectious Diseases Society of America.
2. Infectious disease society of America. https://www.idsociety.org/
3. Sanford Guide Accessible. https://www.sanfordguide.com/