Skin and Soft Tissue Infections are a Common Reason for Potentially Inappropriate Antimicrobial Use among Inpatients in Sri Lanka

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Background/Aims

Skin and soft tissue infections (SSTI) are a common reason for antimicrobial use in the outpatient and inpatient settings. Inappropriate antimicrobial use for SSTI is common. We determined the prevalence of SSTI and associated inappropriate antimicrobial use among inpatients in Sri Lanka.

Methods

A point-prevalence study of antimicrobial use was conducted using one-day cross-sectional surveys at five public hospitals in Southern Province, Sri Lanka from Jun-Aug 2017. Inpatients' medical records were reviewed for clinical data including antimicrobials prescribed. Inappropriate antimicrobial use was identified as 1) antimicrobial use discordant with guidelines by the Sri Lanka College of Microbiologists (SLCM), and 2) redundant combinations of antimicrobials. Guideline-discordant therapy was defined as the use of any antimicrobial not recommended as 'primary' therapy for cellulitis/ soft tissue infection. Antimicrobial primary therapy including co-amoxiclav, penicillin, flucloxacillin, ceftazidime, vancomycin, piperacillin-tazobactam, cephalexin, clindamycin, or erythromycin/azithromycin is considered as an appropriate therapy. Redundant therapy was defined as the concurrent use of ≥2 beta-lactam antibiotics or ≥2 antibiotics active against anaerobes, *Pseudomonas aeruginosa,* or methicillin-resistant *Staphylococcus aureus.*

Figure 1. Cherin and Hasini in Teaching Hospital Karapitiya, 2017

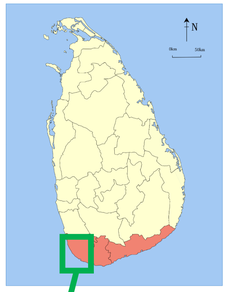

Figure 2. The location of five hospitals in Southern Province, Sri Lanka, 2017

Table 1. Inappropriate Antimicrobial Use among Hospitalized SSTI Patients, by hospital and type of ward, Southern Province, Sri Lanka, 2017

Hospital/Ward Characteristic	Inappropriate antimicrobial use for SSTI No. (%)	Total patients with antimicrobial use for SSTI No.
Tertiary level hospital	66 (55.0)	120
Secondary level hospital	21 (43.8)	48
Primary level hospitals	9 (69.2)	13
Overall	96 (53.0)	181
Medical wards	28 (54.9)	51
Surgical wards	65 (52.0)	125
Pediatric wards	1 (50.0)	2
Intensive care units	2 (66.7)	3
Overall	96 (53.0)	181

Results

- Of 1,709 surveyed patients, 935 (54.7%) received antimicrobials, of whom 779 (83.3%) had a specified or inferred indication for antimicrobial use.
- Among patients with an indication for antimicrobial use, SSTI was the second leading indication (181 patients, 23.2%) after lower respiratory tract infection (194, 24.9%).
- One-third (62, 34.2%) of patients with SSTI had a history of diabetes. Commonly used antimicrobials for SSTI included amoxicillin & clavulanic acid (40.3%), extended-spectrum penicillins (24.9%), and metronidazole (22.1%).
- Inappropriate antimicrobial use was observed in 53.0% of SSTI patients, with redundant antibiotic therapy in 35.9% and antimicrobials discordant with SLCM guidelines in 32.6%.

Table 2. Antimicrobials Prescribed for Indication of SSTI, Southern Province, Sri Lanka, 2017

Antimicrobials used for SSTI	IV	Oral	N (%)
Amoxicillin & clavulanic acid	62	11	73 (40.3%)
Dicloxacillin/Nafcillin/Oxacillin	23	22	45 (24.9%)
Metronidazole	35	5	40 (22.1%)
Clindamycin	16	24	40 (22.1%)
Carbapenem	29	2	31 (17.1%)
3rd generation cephalosporin	25	0	25 (13.8%)
2nd generation cephalosporin	17	3	20 (11.0%)
Aminogylcoside	17	0	17 (9.4%)
Fluoroquinolone	6	10	16 (8.8%)
Vancomycin	8	0	8 (4.4%)
Extended penicillin	7	0	7 (3.9%)
Erythromycin/Azithromycin	1	4	5 (2.8%)
Amoxicillin/Ampicillin	3	1	4 (2.2%)
Clarithromycin	0	4	4 (2.2%)
Acyclovir	1	0	1 (0.6%)
Doxycycline	1	0	1 (0.6%)
Fluconazole	1	0	1 (0.6%)
Netilmycin	1	0	1 (0.6%)
Teicoplanin	1	0	1 (0.6%)
Total patients	151	58	181

Conclusions

SSTI was a common reason for antimicrobial use among inpatients in Sri Lanka, with more than half of patients receiving potentially inappropriate antimicrobial therapy. We identified targets for future antimicrobial stewardship efforts.

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