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## Factors associated with Urinary tract infections caused by extended spectrum β-lactamase (ESBL) producing organisms in Sri Lanka

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**Background**: Urinary tract infections (UTI) caused by extended-spectrum β-lactamase (ESBL)-producing organisms are a major burden in clinical practice. Hospitalization in the past 3 months, antibiotic treatment in the past 3 months, age over 60 years, diabetes mellitus, Klebsiella pneumoniae infection, previous use of second or third-generation cephalosporins, quinolones or penicillins are known associations and risk factors for ESBL-UTI.

**Methods & Materials**: A descriptive study was conducted over a period of 6 months from January - July 2015 recruiting patients with UTI caused by ESBL producing organisms, who were admitted to the Professorial Medical unit, Colombo North Teaching Hospital, Ragama Sri Lanka in order to identify risk factors and associations. Data were obtained using a pre-tested interviewer administered questionnaire and from relevant medical records after obtaining informed written consent.

**Results**: 52 patients were recruited; males 30 (57.7%), mean (SD) age 64.1(.12.6)years. Of them, 46 (88.5%) had diabetes mellitus, 32 (61.5%) had hypertension and 10 (19.2%) had chronic liver disease as comorbidities.20 (38.5%) had ultrasonographic evidence of acute pyelonephritis. At presentation16 (30.8%)had biochemical and/or ultrasonographic evidence of chronic or acute on chronic kidney disease. History of constipation was observed in 18 (34.6%), hospitalization during the past 3 months was seen in 24(46.2%)and history of urinary catheterization in 16(30.8%). Features of obstructive uropathy such as hydronephrosis, hydroureter and prostatomegaly were seen in 4 (7.7%) patients each. Antibiotic treatment within the past 3 months was observed in 32(61.5%);penicillins in 18(34.6%), 3rd generation cephalosporins in 16(30.8%),quinolones in 14(26.9%) and 2nd generation cehalosporins in 12 (23.1%). 18 (34.6%) had received more than one antibiotic within the past 3 months. 8(15.4%)patients studied were on prophylactic antibiotics for recurrant UTIs. None of them had recent Klebsiella pneumonia.

**Conclusion**: Similar to other studies,diabetes mellitus, recent antibiotic treatment, hospitalization and catheterization were observed in our patients with ESBL-UTI. The fact thatonly 53.8% patients had received antibiotics at community level and 38.5% patients had never received antibiotics prior to developing ESBL-UTIsuggest high prevalence of ESBL producing organisms at community level.

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## Pathogenetic significance of macrophage inflammatory protein-IA in patients with erysipelas of the lower extremities

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**Background**: The aim of study was to clarify the biochemical mechanisms of severe hemorrhagic forms of erysipelas and find the possible early predictors of its development.

**Methods & Materials**: 90 patients with erysipelas of the lower extremities (ELE) were examined. 44 patients had erythematous (1th group), 24 - bullous (2th group) and 32 - hemorrhagic (3th group) forms of ELE. The level of macrophage inflammatory protein-1A (MIP-1a) was investigated in the dynamics of ELE. Also we studied the phagocytic activity of neutrophils and monocytes.

**Results**: In the acute phase of disease the level of MIP-1a in 1th and 2th groups was lower than in healthy individuals: 9.10pg/ml (95%CL 7.84-10.36pg/ml), 10.8pg/ml (95%CI 9.43±12.17pg/ml) and 13.6pg/ml (95%CI 11.88±15.32pg/ml) accordingly, p-value 1-n=0.03, p-value 2-n=0.04. In 3th group it was significantly higher in comparison with all other groups 290.7pg/ml (95%CI 284.49-296.91pg/ml).

Phagocytic activity was considerably higher in patients of 3th group than in patients of 1th group: 92,5% (95%CI 91.88-93.12%) and 83,5% (95%CI 82.49- 84.51%) for neutrophils (p-value 1-3=0.001) and 88,5% (95%CI 87.94-89.06%) and 80,0% (95%CI 77.77-82.23%) for monocytes (p-value 1-3=0.002).

In the convalescent period the level of MIP-1a increased to 11.7 pg/ml (95%CI 8.14-15.26pg/ml) at erythematous form and 13.5% (95%CI 10.26-16.74 pg/ml) at bullous form without difference between them and normal level. In 3th group it was down to the level of a norm 13.7 pg/ml (95%CI 10.46-16.94 pg/ml). Within 12 months of follow-up period we observed only 1 relapse in 3th group, 3 - in 2th group and 6 in 1th group.

**Conclusion**: Identified changes in the level MIP-1a reflect its role in the implementation of the phagocytic activity. Mostly it refers to the monocytes, as evidenced by an increase in its level in patients with hemorrhagic form of erysipelas, where their activity was maximal.

Significant reduction of relapses in patients with hemorrhagic erysipelas probably connected with increased PA, which can stimulate nonspecific resistance via activation of phagocytosis.

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