

PREVALENCE AND ANTIBIOTIC SUSCEPTIBILITY OF INTRA-ABDOMINAL AND URINARY TRACT INFECTION

ESBL POSITIVE PATHOGENS IN TWO LARGE SCALE TERTIARY CARE CENTERS IN LEBANON:

AN EVALUATION OF SMART DATA 2011-2012 FROM LEBANON COMPARED TO REGIONAL MIDDLE EAST.

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INTRODUCTION

The study for Monitoring Antimicrobial Resistance trends (SMART) has been following trends in resistance among gram-negative bacilli (GNB) since 2002. GNB resistance has been on the rise as shown by reports since then. This report summarizes and compares SMART data from 2011 and 2012 from two participating Lebanese centers and the whole Middle East region.

MATERIALS AND METHODS

Isolates from Intra-abdominal infections (IAI) and Urinary tract infections (UTI) were collected from two Hospital-University Medical Centers in Lebanon. The prevalence of the isolated GNB in 2011 and 2012 as well as the prevalence of ESBL positive pathogens was assessed. Susceptibility testing was done against 12 antibiotics according to the 2012 clinical Laboratory standards Institute (CLSI) guidelines. Minimal inhibitory concentrations (MICs) were determined by broth microdilution, and interpreted using CLSI-2012 breakpoints. The results were then compared to those obtained from the Middle East region SMART.

CONCLUSION

This study documented a **similarity in bacterial ecology between Lebanon and the Middle East region** with a significant number of ESBL+ organisms that needs to be taken seriously. Only **ertapenem, imipenem and amikacin** showed a consistent susceptibility against the two most common species and remain the most effective drugs at the level of the region and the country (Lebanon) **against *E. Coli* and *K. Pneumoniae*** (ESBL and non-ESBL). **These results reflect the need for antibiotic stewardship which should include local guidelines for empiric antibiotic in addition to continuous monitoring of local epidemiology to control the growth of this devastating problem of resistance.**

REFERENCES

SMART study 2011-2012.

RESULTS

A total of **419 isolates** from **Lebanon** and **2003** from **Middle East** were recovered and tested.

According to Lebanon SMART data 2011-2012, the predominant pathogen was ***E. coli*** which accounted for **61%** (233/419) of the isolates. The other predominant isolates were ***K. Pneumoniae*** (9%), ***P. Mirabilis*** (9%) and ***P. aeruginosa*** (8%). These results are similar to those obtained in the Middle East region (***E. coli*** 54%, followed by ***K. pneumoniae*** 18%, ***P. aeruginosa*** 10% and ***P. mirabilis*** 5%).

In Lebanon, **26%** of all isolates were **ESBL +** versus **27%** for the Middle East isolates (***E. coli*** 39%, ***K. Pneumoniae*** 47% and ***P. Mirabilis*** 9% versus 34%, 50% and 18% respectively) with the reduced susceptibility profiles normally associated with that phenotype.

The susceptibility profiles of *E. coli* and *K. pneumoniae* isolated from IAI and UTIs in Lebanon and Middle East are represented in figure 1. Overall, the results show that **ertapenem, imipenem and amikacin** were the **most active drugs** against these two most common species with **slightly reduced susceptibility against ESBL + strains**.

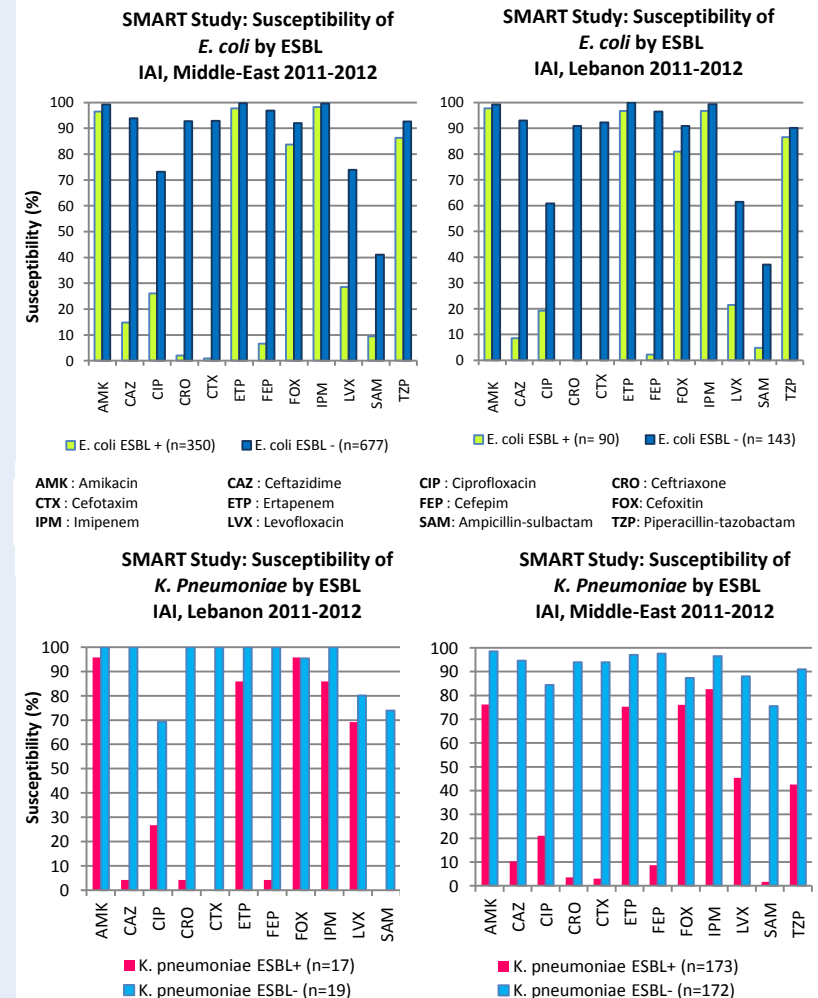


Figure 1: Comparison of the susceptibility profiles of *E. coli* and *K. pneumoniae* isolated in IAI/UTI between two Lebanese centers and the Middle East region (SMART study 2011-2012).