Antibiotic resistance among war-wounded patients in Amman hospital, Jordan

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Background

War-wounded civilians in Middle East countries are at risk of post-traumatic osteomyelitis (PTO). We describe the bacterial etiology and proportion of first-line antibiotic resistant bacteria (FLAR) among PTO cases in civilians from Syria, Iraq and Yemen admitted to the reconstructive surgical program of Médecins Sans Frontières (MSF) in Amman, Jordan.

Methods

We analyzed the laboratory database of the MSF program. Inclusion criteria were: patients from Iraq, Yemen or Syria, admitted to the Amman MSF program between 2006 and 2016, with at least one bone biopsy sample culture result. Only bone samples taken during the first orthopedic surgery were included in the analysis.

Results

Of the 727 patients included, 558 (76.7%) had ≥1 positive culture results. Of these, 318 were from Iraq, 140 from Syria and 100 from Yemen. Median time since injury was 19 months. Among the 732 different bacterial isolates, we identified 228 *Enterobacteriaceae* (31.5%), 193 *Staphylococcus aureus* (26.3%), 99 *Pseudomonas aeruginosa* (13.5%), and 21 *Acinetobacter baumanii* (2.8%). Three hundred and sixty-four isolates were FLAR: 86.2% of *Enterobacteriaceae*, 53.4% of *Pseudomonas aeruginosa*, 60.5% of *S. aureus* and 45% of *Acinetobacter baumannii*. There was no difference in bacterial etiology or proportion of FLAR according to the country of origin.

Conclusions

Enterobacteriaceae were frequent in PTO in war wounded civilians from Iraq, Yemen and Syria between 2006 and 2016. Proportion of FLAR was high, particularly among *Enterobacteriaceae*, regardless of country of origin.

Enterobacteriaceae were frequent in PTO in war wounded civilians from Iraq, Yemen and Syria between 2006 and 2016. Adequate management requires a high-quality laboratory, a skilled surgical team, robust antibiotic stewardship and effective infection prevention and control practices.