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Are antibiotics being over-prescribed for the treatment of urinary tract infections? A prospective study among pregnant refugees in Beirut, Lebanon

*Christine Al Kady¹, Krystal Moussally¹, Severine Caluwaerts², Wafaa Chreif¹, Johanna Dibiasi¹, Dounia Soukarieh¹, Anna Farra^{1,3}, Fabiola Gordillo G², Annick Lenglet^{4,5}

¹Médecins Sans Frontières (MSF), Beirut, Lebanon; ²MSF, Brussels, Belgium; ³Lebanese American University, Byblos, Lebanon; University of KwaZulu-Natal, Durban, South Africa; ⁴International Centre for Antimicrobial Resistance Solutions, Copenhagen, Denmark

*msfocb-sb-obgyntl@msf.org

Introduction

Inappropriate use of antibiotics is widespread, and one of the main drivers for antimicrobial resistance (AMR). In pregnant women with suspected urinary tract infection (UTI), studies have suggested antibiotic over-use in up to 96%; use may be particularly high in settings with limited diagnostic resources and where reliant on symptomatic approaches. In south Beirut, specifically within camps where refugees settle and living conditions are poor, MSF has been operational since 2014 as the main provider of free primary healthcare services as well as sexual and reproductive health (SRH) care. Current MSF protocols operational in this setting recommend the use of urine dipsticks for UTI screening in pregnant women, followed by empirical antibiotic treatment for those with a positive result (positive for nitrites and/or leucocytes).

Methods

In 2021, around 6,300 (24%) of the total 26,300 antenatal care (ANC) consultations conducted had a suspected UTI, based on urine dipstick results, and all those suspected with UTI were prescribed antibiotics. A prospective study was conducted between April and July 2022, to determine if adding urine culture, following positive urine dipstick, to the protocol would reduce the use of unnecessary antibiotics. We used descriptive statistics to describe the population and compare positive and negative urine cultures. We calculated the proportion of patients receiving appropriate or inappropriate antibiotics.

Ethics

This study was approved by the MSF Ethics Review Board, and by the ethics committee of the Lebanese American University.

Results

A total of 449 pregnant women with suspected UTI were included in this study; all received urine culture. 81 (18%) were culture-positive. Under usual practice, 368 women (82%) would have been overprescribed antibiotics, based solely on urine dipstick results. 197 (44%) of the cohort were symptomatic, and were given empirical antibiotic treatment, with cefixime administered to 42 (21%) women and fosfomycin to 155 (79%). *Escherichia coli* (79%) was the most common bacterial species isolated, followed by *Proteus* (11%). In addition, among the 81 positive cultures, 4 (5%) were found resistant to fosfomycin and 39 (48%) to cefixime.

Conclusion

These study findings reinforce concern around potential over-prescription of unnecessary antibiotics in such populations, which could contribute to a potential rise in AMR. In addition, resistance to cefixime, one of the recommended antibiotics to treat UTI's, is relatively high in this community. In contexts where urine culture is feasible, not costly, accessible, and results rapidly available, particularly with large cohorts of patients, urine culture should be the main method used to diagnose UTI; treatment should be based on microbiology/antibiotic sensitivity results.

Conflicts of interest

None declared.