

Surveillance study on antimicrobial prescription and consumption in Healthcare and Community Facilities in Libya

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Abstract

Surveillance involves the collection and analysis of data for the detection and monitoring of threats to public health. Surveillance should also inform as to the epidemiology of the threat and its burden in the population. A field study questionnaires and interviews(face to face) was carried out between October. 2015 and November 2016. This study involved 7 different questionnaire formats , designed to cover main healthcare and community issues on antimicrobial prescription and consumption. General public questionnaire involved (n=500) person questioned through about antibiotic consumption, prescription and other related issues. Of the 40 healthcare and community pharmacist surveyed 60% (6/10) and 86.67% (26/30) respectively revealed that there were prescription guidelines laid down by the local health authority but these were not fully implemented. In addition to that 70% (7/10) of healthcare pharmacist and 73.38% (22/30) community pharmacist prescribed antibiotics without prescriptions ($P > 0.05$ for all comparisons). Seventy percent of the respondents said that they issued antibiotics such as flucloxacillin/oxacillin without prescription. Eighty-five percent of the respondents working in the healthcare pharmacies and 90%from the community said that no advice information was given to the general public on antimicrobial resistance and antibiotic overuse. Seventy nine of healthcare pharmacists issued antibiotics under patient pressure compared with 86% from the community pharmacists. Forty five percent of the respondent from the general public said they used antibiotics for minor illness such as cough and toothache. These observations may demonstrate the wider misuse of antibiotics in the healthcare and community in particular. Susceptibility testing of in-patient and out-patient MRSA isolates was part of this/ major surveillance study. The study showed also dissemination of multi-drug resistance in healthcare and community settings.

Key words: antibiotic resistance, prescription, healthcare settings, community settings

Introduction

Surveillance involves the collection and analysis of data for the detection and monitoring of threats to public health. Surveillance should also inform as to the epidemiology of the threat and its

burden in the population. A further key component of surveillance is the timely feedback of data to stakeholders with a view to generating action aimed at reducing or preventing the public health threat being monitored.

Surveillance of antibiotic resistance involves the collection of antibiotic susceptibility test results undertaken by microbiology laboratories on bacteria isolated from clinical samples sent for investigation. Correlation of these data with demographic and clinical data for the patient populations from whom the pathogens were isolated gives insight into the underlying epidemiology and facilitates the formulation of rational interventions aimed at reducing the burden of resistance. Antibiotic resistance poses a major threat to clinical medicine and public health, not only in the Libya but internationally [1–3]. Surveillance studies showed evidence of widespread misuse of antimicrobials in Libyan healthcare and community facilities

Conclusion

Antibiotic resistance poses a major threat to clinical medicine and public health not only locally but internationally [5&6]. Surveillance studies showed evidence of widespread misuse of antimicrobials in Libyan healthcare and community facilities. The pharmaceutical sector in Libya does not adhere to the standards recommended by the WHO. The lack of political stability, appropriate infrastructure and well-trained personnel are the key reasons for the suboptimal performance of the pharmaceutical sector in Libya. Surveillance programs not only in Libya, but across the world, have shown that antibiotic resistance is a major threat to global health. Many initiatives are being launched in efforts

to reduce, or at least slow down the rate of increase of resistance. Having served to identify the threat posed by antibiotic resistance, existing and new surveillance systems must now be used to assess the effectiveness and impacts of these initiatives and interventions. Timely and targeted dissemination of surveillance data will continue to be an essential component of efforts to combat the threat of resistance along with firm restriction on antimicrobial prescription and consumption. This study has also shown that MRSA is prevalent with similar rates for IP-MRSA, OP-MRSA and CC-MRSA strains. Lack of controls on supply of antibiotics may be responsible for the MRSA fusidic acid resistance and MDR resistance patterns. Withdrawal of topical fusidic acid in dermatology department (Southern General Hospital/UK) led to a statistically significant fall in fusidic acid resistance rates [7]. This might be just one of the measures that could be considered to minimize the spread of fusidic acid resistance in Libya and the implementation of large-scale prospective surveillance monitoring programs and health education.

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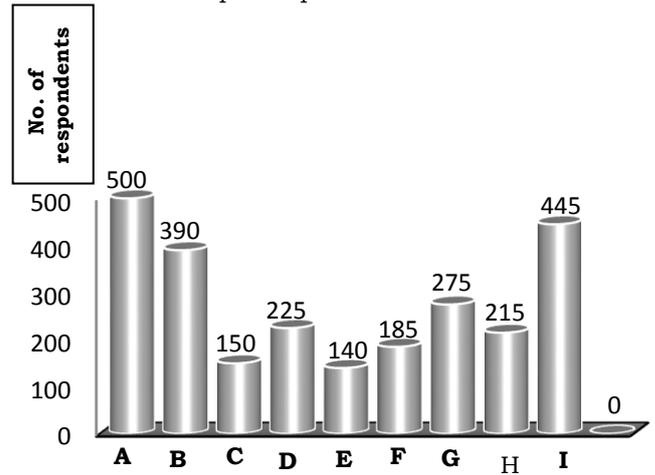
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Key: **A**= Total respondents **B**= issuing antibiotics without prescription **C**= Prescription guidelines not implemented **D**= Prescription by Dentists/Pharmacists **E**= Feedback on antimicrobial resistance to public. **F**= Broad spectrum antibiotic prescription **G**= GPS broad-spectrum antibiotic prescription **H**= pharmacists seeking prescription information from GPS **I**= Issuing antibiotics under patient pressure without Doctor’s prescription



General public respondents

Fig 2: General public views on antibiotic Consumption

Key: **A**= Respondents age on questionnaire package(17-65years) **B**= Respondents age groups most acquiring antibiotics (20-40years) **C**= Obtain antibiotics without prescription **D**= Consuming antibiotics for minor illness **E**= Taking antibiotics without prescription from unknown source **F**= Antibiotics kept at residence home **G**= Doctors instructions followed **H**= Giving own antibiotics to family Members **I**= Paying for prescription that is not available in healthcare chemists

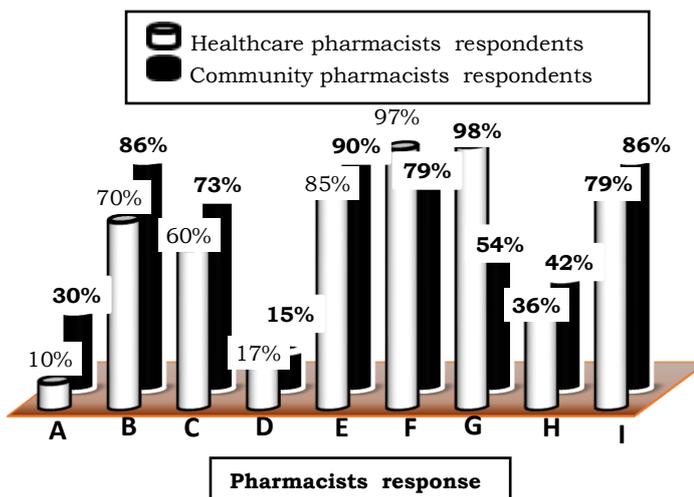


Fig1: Healthcare and community pharmacists views about antibiotics prescription and consumption

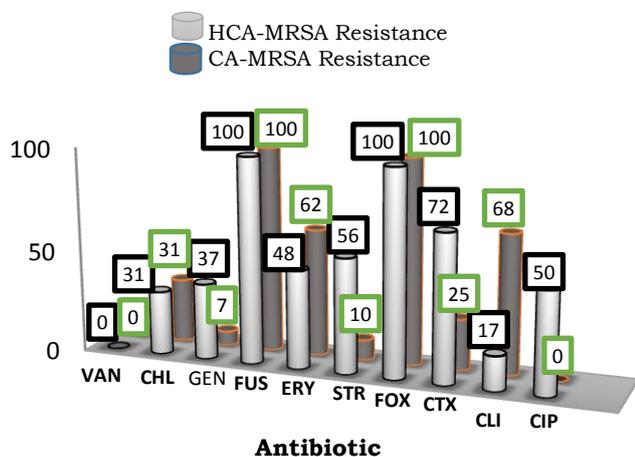


Fig. 3. Multi-drug resistance pattern of in-patient and out-patient MRSA isolates.
Key: **VAN**; vancomycin, **CHL**; chloramphenicol, **GEN**; gentamicin, **FUS**; fusidic acid, **ERY**; erythromycin **STR**; streptomycin, **FOX**; methicillin, **CTX**; cefotaxime, **CLI**; clindamycin, **CIP**; ciprofloxacin.
MRSA; Methicillin-Resistant *Staphylococcus aureus*