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Pattern of antibiotic usage and predictors of hospital outcome among patients with systemic bacterial infection in Nekemte referral Hospital, Western Ethiopia.Getachew Alemkere^{1*}, Getu Bayisa², Abrham Belachew³¹Department of Pharmacology and Clinical Pharmacy, School of Pharmacy, College of Health Science, Addis Ababa University, Ethiopia²Department of Pharmacy, College of Health Science, Wollega University, Wollega, Ethiopia³Department of Pharmacy, College of Health Science, Bahir Dar University, Bahir Dar, Ethiopia**Abstract****Objective:** Pattern of antibiotic usage and predictors of hospital outcome among patients with presumed systemic bacterial infection in Nekemte Referral Hospital Western Ethiopia.**Methods:** An institution based prospective observational study was performed from December 1 to March 30, 2017 in the internal medicine wards of Nekemte Referral Hospital. Patients who had presumed systemic bacterial infections were strictly followed. Data was collected on demographic, disease and drug related factors using a data abstraction format. Antibiotic use practice was described and predictors for mortality and length of stay were identified. Descriptive statistics and binary logistic regression were used for statistical analysis.**Results:** Females accounted for about 55% of the total 193 study participants whose mean (\pm SD) age was 39.97 ± 17.12 . More than half (58.6%) of the participants had presumed systemic bacterial infections on admission. Whilst pneumonia was the first most prevalent infection presumed (47.7%), cephalosporins were the most widely prescribed (66.7%) class of drugs. Only one culture and 8 gram stain reports were documented and all the drugs were empirically used. About 8% of the wards patients were died during the in-hospital stay. The mean (\pm SD) in-hospital length of stay was 6.98 ± 3.22 days (range: 3-18). While presence of a medical device was a positive predictor (AOR=4.50, 95% CI: 1.09, 18.60, $p=0.038$) and prolonged length of stay was the negative predictor (AOR=0.22, 95% CI: 0.05, 0.90, $p=0.035$) of mortality. On the other hand only presence of multidrug resistance (MDR) risk (AOR=6.14, 95% CI: 1.68, 22.41, $p=0.006$) was positively associated with prolonged in-hospital length of stay.**Conclusion:** Generally, these observations showed that all patients with systemic bacterial infection received antibiotics on an empiric basis. Broad spectrum third generation cephalosporins were the most commonly used drugs. These warrant an appropriate antimicrobial use policy in the context of resource-limited settings.**Keywords:** Antibiotic use, Length of Stay, In-hospital Mortality, Nekemte referral Hospital, Western Ethiopia.

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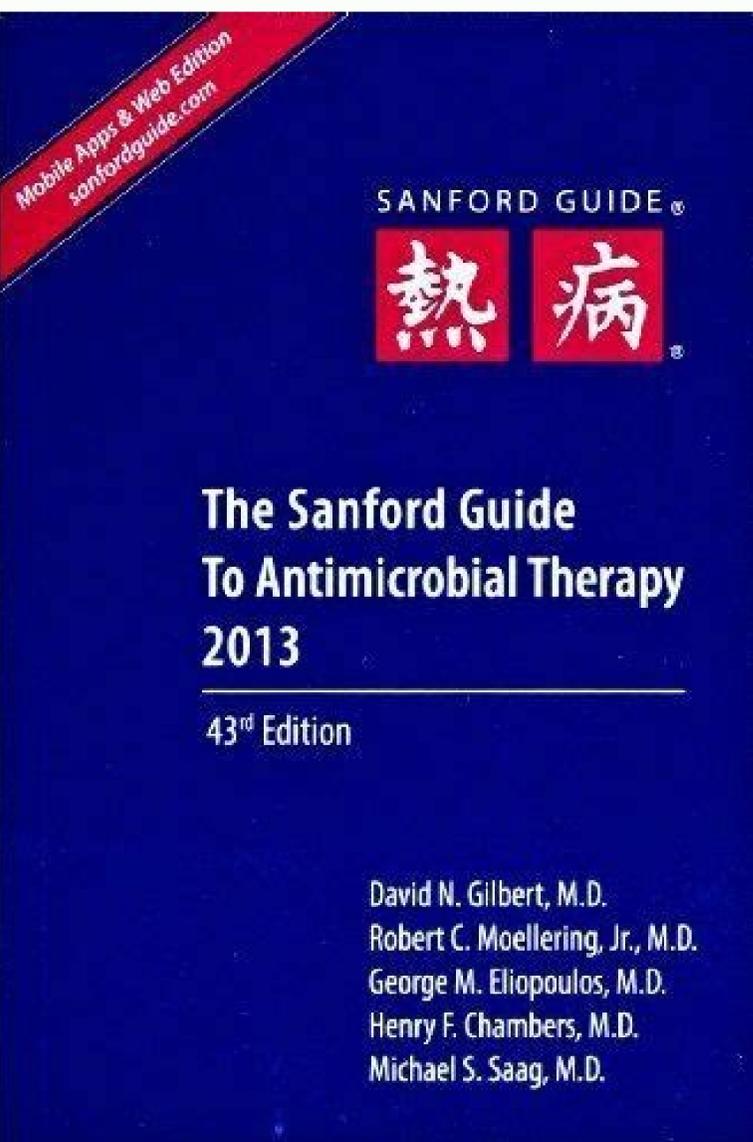
Introduction

Based on alarming accumulated facts in the previous few years, antimicrobial resistance is an increasingly important patient safety and public health issue [1]. About half of antimicrobial agents prescribed to hospital in-patients are considered inappropriate [1]. As per the different studies undertaken in Tikur Anbessa Specialized Hospital (TASH) in the previous year, antimicrobials were the most common drug categories associated with both prescribing [2,3] and administration errors [3]. These malpractices have been associated with increased mortality, adverse drug reactions, financial cost and the development of resistant bacteria, which hold the threat to the generation [4-6]. As a result, it is more difficult than ever to challenge infections caused by antibiotic-resistant microbes [5].

Different approaches have been promoted to save these precious drugs from the threat of resistant bacterial selection [7-9].

Although resistance is a global concern, it is primarily a local problem: selection for and amplification of resistant members of a species are occurring in individual hospitals (and communities), which can then spread worldwide [10,11]. Single and multiple drug resistance to the commonly used antibiotics were high among bacterial isolates in different areas of Ethiopia, warranting rational use of drugs in the local environment [12,13]. Thus, it will need a widespread effort at the individual institutional level to impact antimicrobial usage and, by extension (hopefully), antimicrobial resistance.

This study was done to describe the pattern of antibiotic use, to identify priority areas of future intervention and to set



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