Inappropriateness of antimicrobial prescription in private primary health care settings in South Africa

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To the Editor: Antimicrobials are the most commonly prescribed group of drugs and are overused globally. It has been reported that 20 - 50% of these agents are used inappropriately in developing countries.1 This has resulted in an enormous escalation in the total costs of drugs and high risk for the emergence of antibiotic-resistant bacteria.2 There is a high incidence of infectious diseases in developing countries; these are caused by a multitude of micro-organisms, which can either be bacterial or viral and are spread from one person to another in various ways.

Permission to conduct the study was granted by a private primary health care service provider and approval was obtained from the Research Committee of the North-West University, Potchefstroom campus. This was a non-experimental, quantitative, retrospective study. Data were obtained from the central database of the private primary health care group. Nine clinics, situated in different geographical areas of South Africa, were randomly selected from 33 clinics with electronically available data. The study population consisted of all patients who visited the nine clinics from 1 January to 31 December 2001. Disease states were analysed according to number of patients, gender, age group and treatment. Data were analysed using the Statistical Analysis System (SAS).3 Effect size (d-value) was used as a descriptive statistic.4 The effect sizes were utilised in determining whether there were practical significant differences between the average drug costs. For the purposes of this study a d-value of 0.8 or higher was assumed to have practical significance.

A total of 83 655 patients visited the nine clinics during the year, of whom 49 772 (59.50%) were female and 33 650 (40.22%) male. No gender was indicated in 0.28% of the cases (N = 233). The total number of disease states diagnosed during the study period was 140 723. Antimicrobials were prescribed in 96 421 instances (68.52%). Over 70% of these were prescribed in 96 421 instances (68.52%). Over 70% of the antimicrobials prescribed were for male and female patients in the nine clinics (d < 0.8).

The most frequently diagnosed disease states in the nine clinics were respiratory tract infections (RTIs). Antimicrobials were prescribed for all RTIs – mainly the penicillins (amoxycillin 39.35%) and sulphonamides (co-trimoxazole 23.18%) (Table I). RTIs could be considered one of the leading public health problems in developing countries.3 They constitute 20 - 30% of all contacts in general practice, and the majority of antibiotics prescribed are for treatment of patients with such infections.5 - 7

Table II shows the occurrence of infectious disease states according to age group and treatment.

The results also showed that of all the diagnoses made, RTIs constituted the highest number in all age groups (Table II). The highest number of RTIs was diagnosed in the 21 - 40-year age group, resulting in more antibiotic prescriptions among these patients. This was also the age group with the most patients. This age group is representative of the most economically active members of the society who could therefore afford to visit private primary health care clinics. Antibiotics were prescribed to treat the RTIs in all age groups.

Table II shows the occurrence of infectious disease states according to age group and treatment.

There were practical significant differences between the average costs of individual antimicrobials prescribed for patients in the different age groups in the nine clinics. Significant practical differences (d > 0.8) in the cost of prescribed antimicrobials were observed when the age groups 1 - 6 years and 7 - 12 years, and the highest average costs for prescribed antimicrobials were observed when the age groups 1 - 6 years and 7 - 12 years, and the highest average costs for the age groups 21 years and over.

Based on clinical evaluation, most RTIs in general practice are caused by viruses, and antibiotics are therefore unlikely to have any clinical benefit.4 Studies of the management of RTIs in primary health care in Scandinavia and Spain have shown that a considerable number of antibiotic prescriptions are neither necessary nor appropriate.5 - 7 In fact the use of antibiotics for patients without a bacterial infection may be harmful because antibiotics disrupt the bacterial flora throughout the entire body, not merely at the site of infection, and promote the selection of resistant mutants in normal flora.

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A belief that antibiotics have no place in the treatment of upper respiratory tract infections (URTIs). Emphasis should be placed on the importance of differentiating between bacterial and non-bacterial infections, choosing an antibiotic based on the likelihood of infection with resistant pathogens, and providing coverage against the predominant pathogens.

The main causes of RTIs in children are viruses and the most common types are URTIs, more specifically the common cold, influenza, pharyngitis, otitis media and sinusitis. One review supported the need to reconsider their prescribing practices if the rapid increase in micro-organism resistance is to be stemmed.

There is a worldwide increase in antibiotic resistance, largely related to inappropriate use of antibiotics in the treatment of upper respiratory tract infections (URTIs). Emphasis should be placed on the importance of differentiating between bacterial and non-bacterial infections, choosing an antibiotic based on the likelihood of infection with resistant pathogens, and providing coverage against the predominant pathogens.

There are many factors that could contribute to prescribing practices, and prescribers may decide that maintaining a good doctor-patient relationship outweighs the theoretical risk to the community of developing bacterial resistance to antibiotics. Improving public knowledge in order to decrease the demand for antibiotics would assist prescribers in reducing unnecessary prescribing. General practitioners need to reconsider their prescribing practices if the rapid increase of micro-organism resistance is to be stemmed.

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