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Are treatment guides and rational drug use policies adequately exploited in combating respiratory system diseases?

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Summary The aim of the present study was to increase awareness regarding the rational use of medicines. The data were obtained via the Material Resources Management System Module of the Ministry of Health. For the appropriateness of treatments, the Global Initiative for Asthma, the Global Initiative for Chronic Obstructive Lung Disease, and the guidelines for the rational use of medicines were used. We also investigated whether any de-escalation method or physical exercise was performed. Statistical analyses were performed using descriptive statistics to determine the mean, standard deviation, and frequency. The results showed that healthcare providers ignored potential drug reactions or adverse interactions, and

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reflecting the lack of adherence to the current treatment guides, 35.8% irrational use of medicines was recorded. Thus, de-escalation methods should be used to decrease costs or narrow the antibiotic spectrum, antibiotic selection should consider the resistance patterns, culturing methods should be analyzed, and monotherapy should be preferred over combination treatments.

Introduction

The World Health Organization (WHO) reported that chronic respiratory system diseases will increase in the future as a result of air pollution, global warming, and smoking [1]. In addition, chronic obstructive pulmonary disease (COPD) and pneumonia have been predicted as two of the leading causes of death [1,2]. In addition, the cost of the drugs and pharmaceutical products (DPP) used for the treatment of these diseases has been huge burden on government economies and social security administrations [3,4]. Studies have also reported that chronic diseases pose a threat to public health, and it might not always be possible to access effective treatments due to cost-related factors [5].

The aim of all healthcare providers is to effectively treat patients and avoid adverse reactions to medicine [6]. The aim of the present study was to reduce the economic cost of medical treatments via the implementation of policies regarding the rational use of drug. Despite the massive efforts of infection control committees, antibiotics have been irrationally consumed [7,8].

The present study included patients with COPD or pneumonia, diagnosed and admitted with chest diseases at a state hospital. The aim of the present study was to investigate the compliance of antibiotic use with laboratory, clinical, and recent guidelines and increase awareness regarding the rational use of drugs via the estimation of unit costs using pharmacoeconomic models, including cost-benefit-analysis (CBA) and cost-minimization analysis (CMA).

Materials and methods

Inclusion criteria

The study population included 1101 patients admitted to the Chest Diseases Service (30 beds) of Tekirdağ State Hospital (400 beds) between January 01, 2012 and December 31, 2012. For cost analyses, some patients were excluded for specific reasons.

According to the diagnosis, COPD, pneumonia, and asthma patients were included in the present study. Apart from this, intensive care unit patients, tuberculosis, bronchiectasis, pulmonary embolism, diffuse parenchymal lung disease and asthma, pneumonia with diabetes mellitus, congestive heart failure, chronic renal failure, sinusitis, and allergic rhinitis were excluded from the present study. Asthma and COPD, accompanied by pneumonia, were included in the group of pneumonia patients (Fig. 1).

The remaining cases ($n = 729$) were included in the study.

Data collection

The data were obtained from Material Resources Management System of the Ministry of Health. The system provided diagnosis, medical history, demographic features, and treatment data. As part of the treatment info, all DPP, including feeding solutions and serums with dose information, and culture antibiogram results for patients who used antibiotics were obtained and analyzed. Drug interactions commonly encountered in the patient records and the compatibility of these substances with the treatment guides and guidelines for the rational use of drugs were analyzed [9,10]. Moreover, whether physical exercise was recommended to reduce medicine costs was examined using random sampling in 10% of the population.

Cost evaluation

The cost of the drugs and pharmaceutical products was calculated using unit prices and the actual amount of medicine used. The unit prices were determined using the price list published by the Ministry of Finance and the Turkish Pharmaceutical and Medical Device Agency [11]. Following the calculation of the cost of antibiotics, another pharmacoeconomic analysis was performed using the CMA method, involving an alternative treatment method comparable but more economical than