UNIVERSITI TEKNOLOGI MARA

PRESCRIBING TREND AND PHARMACOECONOMICS EVALUATION OF ANTIEPILEPTIC DRUGS

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ABSTRACT

Antiepileptic drugs (AEDs) are the mainstay of treatment for people with epilepsy. Therefore, knowledge on AEDs prescribing trend is vital for healthcare provider. The costs of AEDs have also become more expensive. Thus, pharmacoeconomics evaluation is concerned to measure the costs, outcomes and comparison of the cost and consequences of therapeutic alternatives. This study aimed to determine the prescribing trend of AEDs and to conduct cost-minimization analysis (CMA) of AEDs. A retrospective study was carried out in out-patient department (OPD) of Hospital Tengku Ampuan Rahimah (HTAR) and Hospital Selayang (HS). Prescriptions containing AEDs for patient of any age were included. Those who had taken oral liquid preparation and non-complete prescription were excluded. The demographic information and details of treatment were recorded. Based on prescription selection, AEDs were screened to find the most frequent AEDs used and this were expressed in percentages. Carbamazepine and lamotrigine were selected in conducting CMA as it was assumed to have equal efficacy. Direct medical costs were identified by using acquisition cost, concomitant medications cost and therapeutic drug monitoring (TDM) cost. The treatment costs were expressed as a total cost and average cost per patient. The data were analyzed by using SPSS 12 for Windows. In this study, a total of 116 prescriptions of AEDs were screened. Forty prescriptions were found to contain carbamazepine (n=33) and lamotrigine (n=7) in HTAR. While, 21 prescriptions contained carbamazepine (n=17) and lamotrigine (n=4) in HS. Carbamazepine was shown to be the most frequent drug prescribed in HTAR with 38.4% whereby in HS, it was phenytoin (29.5%). Besides that, lamotrigine, gabapentin and topiramate contributed not more than 12% of the total AEDs prescribed for both government hospitals (GHs). With regard to CMA, it was shown that the average cost per patient was RM137.36 for carbamazepine and RM204.06 for lamotrigine in HTAR. While in HS, RM115.96 and RM314.06 were the average cost per patient for carbamazepine and lamotrigine respectively. The findings in this study showed that the older generation AEDs were most preferred by physicians. Whereas, new generation of AEDs were the least use for both hospitals. Carbamazepine was also found to have lower treatment cost compared to lamotrigine and thus had the potential to save cost. Therefore, the trend of AEDs prescribing coupled with selection of the most cost-saving medications in the management of epilepsy are crucial for quality healthcare delivery.

CHAPTER 1

INTRODUCTION

Epilepsy is the most common serious neurological disorder affecting an estimated 50 million people worldwide (Brodie & French, 2000). Epilepsy is a heterogenous symptom complex, a chronic disorder characterized by recurrent seizure (Katzung, 2001). Therefore, AEDs therapy is used as the mainstay of treatment for people with epilepsy. The examples of AEDs include carbamazepine, ethosuximide, phenobarbital, phenytoin, primidone, valproate acid, and lamotrigine (Katzung, 2001). Most of AEDs have fair efficacy but with different adverse effects (Shakespeare & Simeon, 1998). The common adverse effects of AEDs include nausea, drowsiness, unsteadiness, dizziness, and memory problems (Collins, Petroff & Mattson, 2000).

Good epilepsy treatment leads to a reduction in the frequency of seizures. Prescribing of AEDs for patient with epilepsy includes combination therapy and monotherapy. Newer AEDs are mainly used as monotherapy because it can facilitates drug compliance. They are also frequently used because it is as effective as older drugs but with less side affects. The rational patient-tailored AEDs selection and dose individualization may be defined by clinical parameters such as sex, age, epilepsy syndrome, and etiology which also influence the prescribing trend of AEDs (Balabanov & Kanner, 2005). In addition, prescribing trend is also influenced by the stage of the epilepsy, its severity and its type