One-day Survey of Potential Drug-drug Interactions in Internal Medicine Wards in A Tertiary Care Hospital

Suthimon Thumtecho¹ Suchai Suteparuk²

¹Department of Medicine, King Chulalongkorn Memorial Hospital, ²Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok 10330, Thailand

Objectives: To study the prevalence of drug-drug interactions (DDIs) in internal medicine wards in a tertiary-care hospital.

Methods: This was a one-day cross-sectional survey of medication given in the four major internal medicine wards (ward A, B, C and D) of King Chulalongkorn Memorial Hospital (KCMH), a tertiary-care hospital with 1,200 beds. The demographic data were collected together with the comprehensive details of medication of each patient. The lists of drugs were analyzed by Micromedex Drug-Reax® System to detect DDIs, categorized by severity into 4 groups. The statistics used for data analysis were unpaired T-test, Pearson’s correlation, ANOVA regression analysis, and ROC curve, done by using SPSS® software version 17.0.

Results: From 530 prescriptions for 76 patients, there were 37.73% with the incidence of DDIs corresponding to 40% DDIs in tertiary-care hospitals of Central Asia and Europe. Pearson’s correlations showed statistically significant increased numbers of DDIs following the numbers of prescribed medications, independently of age and gender. By regression analysis, 7 or more medications prescribed were also statistically shown to be associated. The most frequent number of DDIs for a patient is 2-3, with the average and maximum of 2.59 and 12, respectively. Severe DDIs accounted for 28.5% of all interactions and occurred in 32.89% of all patients. Most frequently found interactions were medications affecting cardiovascular system, e.g. clopidogrel-aspirin. The difference between the prevalence of our DDIs and other studies were the interactions between anti-tuberculous and psychotropic agents, e.g. rifampicin-isoniazid, quetiapine-trazodone. In addition, one contraindicating DDI between metoclopramide-trazodone which increased extrapyramidal reactions was ordered, but finally not given to the patient.

Conclusion: Currently, patients can easier access to a number of medications, which in turn give rise to more incidences of DDIs. In KCMH, fewer incidences of DDIs are observed when compared to other hospitals. Most of them are somewhat unavoidable but predictable as they come from necessary medications to be co-administered such as isoniazid and rifampicin, aspirin and clopidogrel. Anyhow, many severe interactions in our study are preventable. Since it is a one-day study, the recorded DDIs are not really taken place and the prescription with contraindicating DDI was aborted. We believe that a more thorough drug-administration circuit development would help facilitate a healthcare system to deliver the safest treatment for patients.

Keywords: Drug-drug interaction, Tertiary care hospital, Internal medicine