Clinically important drug–drug interactions in primary care

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SUMMARY

What is known and Objective: Drug–drug interactions (DDIs) cause considerable morbidity and mortality worldwide and may lead to hospital admission. Sophisticated computerized drug information and monitoring systems, more recently established in many of the emerging economies, including Malaysia, are capturing useful information on prescribing. Our aim is to report on an investigation of potentially serious DDIs, using a university primary care–based system capturing prescription records from its primary care services.

Methods: We retrospectively collected data from two academic years over 20 months from computerized databases at the Universiti Sains Malaysia (USM) from users of the USM primary care services.

Results and Discussion: Three hundred and eighty-six DDI events were observed in a cohort of 208 exposed patients from a total of 23 733 patients, representing a 2-year period prevalence of 8764 per 100 000 patients. Of the 208 exposed patients, 138 (66.3%) were exposed to one DDI event, 29 (13.9%) to two DDI events, 15 (7.2%) to three DDI events, 6 (2.9%) to four DDI events and 20 (9.6%) to more than five DDI events. Overall, an increasing mean number of episodes of DDIs was noted among exposed patients within the age category ≥70 years (P = 0.001), an increasing trend in the number of medications prescribed (P < 0.001) and an increasing trend in the number of long-term therapeutic groups (P < 0.001).

What is new and Conclusion: We describe the prevalence of clinically important DDIs in an emerging economy setting and identify the more common potentially serious DDIs. In line with the observations in developed economies, a higher number of episodes of DDIs were seen in patients aged ≥70 years and with more medications prescribed. The easiest method to reduce the frequency of DDIs is to reduce the number of medications prescribed. Therapeutic alternatives should be selected cautiously.

WHAT IS KNOWN AND OBJECTIVE

Drugs can be used in combination to achieve a preferred therapeutic goal or to treat coexisting diseases. Such combinations may result in undesired interactions of a pharmacodynamic or pharmacokinetic nature with consequential undertreatment or harmful effects. The possibility of one drug influencing the safety or efficacy of another drug (a drug–drug interaction, DDI) is an additional variable when choosing pharmacotherapy. In selecting the optimum therapy, factors like dose, route of administration, contraindications, the possibility of adverse drug reactions and cost are important. DDIs cause considerable morbidity and mortality worldwide.

Several studies using administrative databases have estimated the prevalence of DDIs among ambulatory patients in different countries. Sophisticated computerized drug information and monitoring systems, more recently established in many of the emerging economies, including Malaysia, are capturing useful information on prescribing. Our aim is to report on an investigation of potentially serious DDIs, using a university primary care–based system capturing prescription records from its primary care services. Our hope is that the data reported would provide a useful baseline for follow-on or comparative studies, both nationally and internationally, particularly by those interested in prescribing quality in emerging economies.

METHODS

This is an observational retrospective case and prescription review of all patients who visited the primary care setting of the Universiti Sains Malaysia (USM). Data were collected from two academic years (i.e. 20 months: 1 July 2004–30 April 2005 and 1 July 2005–30 April 2006) from the university’s computerized databases. USM offers primary health care to its beneficiaries through USM health centre (USMHC) and a panel of private clinics (USMPC). Healthcare utilization data of the beneficiaries are stored in computerized databases in USM’s research and development unit. These computerized databases receive data of beneficiaries’ visits to both USMHC and USMPC. Each visit is documented in these databases with a unique number and includes the beneficiary’s biodata, the diagnosis and the treatment given. In the study period, there were 30 466 beneficiaries. Students, staff and dependants are the three identified categories of patients in this study. These three categories represented 68%, 10% and 22% of the number of beneficiaries, respectively.

This research was carried out with the permission of the USM’s respective authorities. To maintain confidentiality, information related to the identification of patients and healthcare providers was obscured prior to data collection. The data comprised of each patient’s demographics (age, gender, ethnicity, marital status and type of beneficiary) and drugs prescribed. The prescribed medications were classified according to the disease or the body system. Medications for the same disease/