Checking drug interactions

Information and resources for checking potential drug interactions

The expansion in provision of drugs, both to treat and prevent disease, has been accompanied by rise in associated hazards, errors and adverse events. Prescribing has also become progressively complex: with the development of increasing numbers and varieties of drugs and more individuals with compound co-morbidities taking multiple medications. These factors amplify the likelihood of drug interactions, side-effects and administration errors [1].

Health professionals have a duty to check that any care or treatment provided is compatible with any other treatments an individual is receiving. This includes any general sale and pharmacy medicines (medicines available over the counter (OTC) without a prescription) as well as prescribed drugs the traveller is already taking [2].

Two or more drugs given together can apply their effects independently, or they can interact. Potentially harmful drug interactions may only occur in a small number of individuals, but true incidence can be hard to establish. The severity of harmful interactions can vary between individuals. Those at increased risk include older people and those with impaired organ function or comorbidities [3].

Drug interactions may make a drug less effective, cause unexpected side effects or increase the action of a particular drug [4]. Therefore, interactions can result in antagonism or enhancement of one drug by another, or result in other effects, such as renal impairment. Drug interactions may develop either through pharmacokinetic or pharmacodynamic mechanisms [3].

Delivering medication often involves a range of health professionals and communication failures can lead to a gap in continuity. A health professional may look after individuals taking medications prescribed by other clinicians (often specialists) and may not be familiar with the effects of all prescribed drugs. Inadequate knowledge of indications, contraindications and drug interactions can lead to prescribing errors. Failure to consider physical, cognitive, emotional and social factors that might alter prescribing, such as allergies, pregnancy, co-morbidities, health literacy and other medications the patient may be taking is another source of error [1].

This is becoming an increasing problem with the rise of available medicine. It is not realistic for individual health professionals to remember all the relevant details necessary for safe prescribing, without referring to reference materials [1].

Therefore, the General Medical Council advise that health professionals should use electronic and other systems to improve the safety of prescribing. These systems can highlight interactions and allergies and ensure consistency and compatibility of medicines prescribed, supplied and administered [5].

Resources for checking drug interactions

The British National Formulary (BNF) Interactions tool is a useful resource for health professionals. Some general practice and travel clinic computerised patient record systems incorporate a drug interactions checker. However, these systems still depend on the health professional obtaining a comprehensive drug history from the traveller and entering details into the system [1].

The potential effect of any planned medication on a traveller with pre-existing medical conditions also need to be considered. The importance of taking a through medical history, including details of any current or recent medication, prior to prescribing any further medication should not be underestimated [1].

The Medicines and Healthcare Products Regulatory Agency (MHRA) Drug Safety Update and the MHRA Central Alert System provide information and advice to support the safer use of medicines and alert health professionals to safety information about medicines they prescribe. The National Institute for Health and Care (NICE) Evidence Search has extensive information on safe, effective and efficient use of medicines [5].

The electronic medicines compendium lists Summaries of Product Characteristics (SPC) for all drugs with marketing authorisation in the United Kingdom (UK). For products without a UK marketing authorisation, prescribing information, in English, should be available directly from the manufacturer.

Health professionals unsure about interactions or other aspects of prescribing and medicines management should seek advice from experienced colleagues, including pharmacists, prescribing advisers and clinical pharmacologists [5]. Further information is available at Keeping up to date and prescribing safely, NSPA, other specialist services.

Taking a drug history

Without an accurate medication history, prescribers may inadvertently make incorrect decisions about a patient's treatment, causing harm if previously discontinued medicines are restarted, or if current medicines are omitted or prescribed at the wrong dose for the patient [6].

WHO advise the following guidelines when taking a drug history:

- Include name, dose, route, frequency and duration of every drug an individual is taking.
- Ask about recently stopped drugs, OTC medications, dietary supplements and complementary medicines, if a compliance aid is used and if there are any medications they have been advised to take, but do not actually take.
- Look up unfamiliar drugs - search reliable, evidence-based sources of information and/or contact other health-care professionals (e.g. pharmacists).
- Consider drug to drug and drug/food interactions, medications that can be ceased and medications that may be causing side-effects.

- Always include a thorough allergy history.
- In addition to prescription drugs, consumers self-prescribe OTC drugs, including herbal remedies. Sometimes these drugs can cause adverse events, particularly when taken with other medications [1].

Medicines reconciliation

Medication errors represent the most common patient safety error. A large percentage of medication errors are believed to result from inadequate reconciliation in handoffs during admission, transfer, and discharge of patients. some of which are believed to result in harm [7].

Many of these errors would be averted if medication reconciliation processes were in place. Good communication is vital, including a formal comparison of medicines pre- and post-care, also known as medication reconciliation [8].

Obtaining an accurate medication history is the first step of the medicine reconciliation process. It is a formal process for creating the most complete and accurate list possible of a patient's current medications and comparing the list to those in the patient record or medication orders.

This reconciliation is done to avoid medication errors such as omissions, duplications, dosing errors, or drug interactions. It should be done at every transition of care in which new medications are ordered or existing orders are rewritten. Transitions in care include changes in setting, service, practitioner, or level of care [7].

Patients can be valuable and active participants in this process by maintaining a current medicine list that is updated when any medicine changes occur.

Resources

- Department of Health and Social Care: Commission on Human Medicines
- Regional and Local Medicines Information Services
- electronic medicines compendium
- European Medicines Agency
- Joint Committee on Vaccination and Immunisation
- Medicines and Healthcare products Regulatory Agency: Alerts and recalls for drugs and medical devices
- National Institute for Health and Care Excellence: Evidence Search
- NHS Business Services Authority: Dictionary of Medicines and Devices
- Nursing and Midwifery Council: Standards of proficiency for nurse and midwife prescribers
- Public Health England: Immunisation against infectious disease
- Public Health England: Vaccine update
- University of Liverpool: HIV Drug Interactions Checker
- World Health Organization: Medication Without Harm
- Health & Care Professions Council

- A Competency Framework for all Prescribers

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