



Prevalence of Adverse Drug Effects and Adverse Drug Reactions in the 200 Most Commonly Prescribed Drugs

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BACKGROUND

Adverse drug reactions (ADRs) and adverse drug experiences (ADEs) are common experiences with medication usage which can impact medication safety substantially. ADR/ADEs are known side effects of medications; however, these effects are unintended and undesired when using medications. ADR/ADEs are more easily detected in institutional settings where patients are closely and routinely monitored by healthcare professionals. In the United States, more than 100,000 deaths are attributed annually to serious adverse drug reactions. Approximately three to seven percent of all hospital admissions in the United States are for treatment of ADR/ADEs. There is a definite need to further understand the incidence and prevalence of ADR/ADEs in the ambulatory population.

OBJECTIVE

To determine the 30 most common adverse drug reactions likely to occur in the top 200 medications of the *Drug Topics* Top 200 Drugs.

METHODS

The 2009 version of the *Drug Topics* Top 200 Drugs list was used to identify the drugs most commonly used within the ambulatory population during 2008. The list was analyzed to identify which ADR/ADEs occur for the prescribed medications in the Top 200 list. Each drug in the Top 200 was categorized according to pharmacological class, as classified in the most recent version of *Drug Facts and Comparisons*. The ADR/ADEs for the medications in each class were obtained from the literature, along with estimates of frequency.

Once the ADR/ADE matrix was identified for each medication, cross-tabulation between the classes permitted the identification of overlap and development of a master list of ADR/ADEs. The resulting ADR/ADE matrix for a specific pharmacologic class was sorted to include those ADR/ADEs common to all medications of the class and ADR/ADEs specific to individual compounds. When an ADR/ADE matrix for all identified pharmacologic classes was identified, the matrixes were compared to identify ADR/ADE and symptom overlap, as well as the most common ADR/ADEs across all drugs and classes.

The ADR/ADE matrix for the top 200 drugs was sorted to tabulate the number of times each potential ADR/ADE was reported in the prescribing information. Clinical judgment was used to consolidate the list of ADR/ADEs by combining terms that represented the same type of reaction, such as shortness of breath and dyspnea. A ranking of this data revealed which ADR/ADEs have the greatest potential to occur within the ambulatory population based on current prescribing patterns.

30 MOST PREVALENT ADVERSE DRUG REACTIONS/ ADVERSE DRUG EVENTS

Rank	Adverse Drug Reaction/Adverse Drug Event	ADR/ADE Counts	Description
1	Nausea	126	Nausea
2	Dizziness	120	Dizziness
3	Headache	119	Headache
4	Vomiting	116	Vomiting
5	Rash	109	Simple, non-specific rashes
6	Diarrhea	108	Diarrhea
7	Constipation	86	Constipation
8	Insomnia	85	Inability to fall asleep or stay asleep
9	Abdominal Pain	79	Pain in the abdomen
10	Dyspepsia	78	Indigestion
11	Pruritis	78	Itching
12	Fatigue	77	Weariness
13	Urticaria	74	Hives
14	Allergic Reaction	69	Combination of immune-mediated symptoms (such as hives, rash, itching)
15	Depression	69	Depression
16	Anaphylaxis	68	Life threatening allergic reaction (including allergic reaction with respiratory arrest)
17	Dyspnea	68	Shortness of breath
18	Tremor	67	Involuntary shaking movement
19	Somnolence	66	Drowsiness
20	Thrombocytopenia	66	Reduction in platelets
21	Arthralgia	65	Joint pain
22	Palpitation	65	Abnormal heartbeat (not including arrhythmias)
23	Paresthesia	64	Sensation of numbness or tingling

Rank	Adverse Drug Reaction/Adverse Drug Event	ADR/ADE Counts	Description
24	Anxiety	61	Anxiety
25	Myalgia	61	Muscle pain
26	Hypotension	60	Blood pressure reduced below normal values
27	Nervousness	60	Nervousness
28	Anorexia	59	Disorder of eating due to loss of appetite
29	Fever	59	Body temperature elevated above normal levels
30	Angioedema	57	Allergic swelling of all layers of the skin

DATA

Evaluation of reported ADR/ADEs associated with each of the 2009 *The Drug Topics* Top 200 Drugs list resulted in 9829 individual potential ADR/ADEs. Of these, there were 758 unique ADR/ADE groupings reported.

DISCUSSION

Knowledge of ADR/ADEs is important for pharmacists in all settings. Remembering all possible ADR/ADEs for each medication can be daunting or seem impossible. Consolidating the ADR/ADEs for each medication, each drug class, and all medications may enable pharmacists to recall the most common side effects and aid in earlier identification of ADR/ADEs, especially in the community setting. This may positively impact patient safety across settings, since adverse drug reactions (ADRs) and adverse drug experiences (ADEs) are common experiences with medication usage.

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