Emergency Department Visits for Antibiotic-Associated Adverse Events

Clinical Infectious Diseases

Supplement issue: Volume 47, Number S1, September 15, 2008

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FROM ABSTRACT:
Background.
Drug-related adverse events are an underappreciated consequence of antibiotic use, and the national magnitude and scope of these events have not been studied.

Our objective was to estimate and compare the numbers and rates of emergency department (ED) visits for drug-related adverse events associated with systemic antibiotics in the United States by drug class, individual drug, and event type.

Methods.
We analyzed drug-related adverse events from the National Electronic Injury Surveillance System–Cooperative Adverse Drug Event Surveillance project (2004–2006) and outpatient prescriptions from national sample surveys of ambulatory care practices, the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey (2004–2005).

Results.
An estimated 142,505 visits annually were made to US EDs for drug-related adverse events attributable to systemic antibiotics.

Antibiotics were implicated in 19.3% of all ED visits for drug-related adverse events.

Most ED visits for antibiotic-associated adverse events were for allergic reactions.

One-half of the estimated ED visits were attributable to penicillins and cephalosporins.

Among commonly prescribed antibiotics, sulfonamides and clindamycin were associated with the highest rate of ED visits.

Sulfonamides were associated with a significantly higher rate of moderate-to-severe allergic reactions, and sulfonamides and fluoroquinolones were associated with a significantly higher rate of neurologic or psychiatric disturbances.
Conclusions.
Antibiotic-associated adverse events lead to many ED visits, and allergic reactions are the most common events.

Minimizing unnecessary antibiotic use by even a small percentage could significantly reduce the immediate and direct risks of drug-related adverse events in individual patients.

THESE AUTHORS ALSO NOTE:

“Antibiotics are among the most frequently used medications in the US.”

“Annually, antibiotics are prescribed to an estimated 16% of patients during ambulatory care visits, and pharmaceutical manufacturers spend >$1 billion promoting antibiotics.”

“Antibiotic resistance resulting from excessive and injudicious use of antibiotics is perceived to be a serious threat to public health.”

Adverse effects associated with antibiotics include diarrhea, dizziness, headache, allergic reactions (rash and anaphylaxis), and toxic effects attributed to overdosing.

RESULTS

“An estimated 142,505 ED visits annually occurred because of antibiotic-associated adverse events.”

“Systemic antibiotics were implicated in 19.3% of all ED visits for drug-related adverse events.”

“Infants (age, <1 year) accounted for only an estimated 6.3% of ED visits; however, after accounting for prescription frequency, the estimated rate of ED visits for adverse events attributable to antibiotics was highest in this age group.”

[Important]

“An estimated 78.7% of drug-related adverse events were attributed to allergic reactions; 6.1% of drug-related adverse events led to hospitalization.”

DISCUSSION

“Adverse events attributable to antibiotics caused >142,000 ED visits per year, and nearly four-fifths of these events were allergic reactions.”

“Nearly 80% of ED visits for antibiotic-associated adverse events among patients receiving ambulatory care were the result of allergic reactions.” “Most allergic reactions can only be prevented by avoiding exposure to a drug.”
“More than one-half of the estimated 100 million antibiotic prescriptions written in the community each year for respiratory tract infections may be unnecessary.” [WOW!]

“Decreasing inappropriate antibiotic use by even a small percentage could substantially reduce the number of patients who experience antibiotic-associated adverse events.”

Fluoroquinolones (a commonly prescribed broad-spectrum antibiotic) were associated with the second highest rates of neurologic or psychiatric effects and hospitalization.

“Unnecessary prescribing of antibiotics in the community remains common.”

“Research has demonstrated that patients frequently do not understand that antibiotics are ineffective against viral infections.”

One-quarter of all estimated ED visits for antibiotic-associated adverse events were by children aged <15 years and the highest rate of ED visits was among infants.

“This investigation focused on drug-related adverse events diagnosed in EDs, and thus, the numbers and rates do not reflect all antibiotic-associated adverse events.” [Important] These authors could not account for unreported events and events identified in other health care settings, such as physicians’ offices. Antibiotics prescribed in nursing homes or ambulatory surgery centers were not included in this study.

“Avoiding unnecessary antibiotic use reduces not only the public health threat of antibiotic resistance but also the risk of drug-related adverse events in individual patients.”

KEY POINTS FROM DAN MURPHY

1) “Antibiotics are among the most frequently used medications in the US.”

2) “Annually, antibiotics are prescribed to an estimated 16% of patients during ambulatory care visits, and pharmaceutical manufacturers spend >$1 billion promoting antibiotics.”

3) “Antibiotic resistance resulting from excessive and injudicious use of antibiotics is perceived to be a serious threat to public health.”

4) Adverse effects associated with antibiotics include diarrhea, dizziness, headache, allergic reactions (rash and anaphylaxis), and toxic effects attributed to overdosing.
5) “An estimated 142,505 ED visits annually occurred because of antibiotic-associated adverse events.”

6) Antibiotics were implicated in 19.3% of all emergency departments visits for drug-related adverse events.

7) “Infants (age, <1 year) accounted for only an estimated 6.3% of ED visits; however, after accounting for prescription frequency, the estimated rate of ED visits for adverse events attributable to antibiotics was highest in this age group.”

[Important]

8) “An estimated 78.7% of drug-related adverse events were attributed to allergic reactions; 6.1% of drug-related adverse events led to hospitalization.”

9) “Nearly 80% of ED visits for antibiotic-associated adverse events among patients receiving ambulatory care were the result of allergic reactions.” “Most allergic reactions can only be prevented by avoiding exposure to a drug.”

10) “More than one-half of the estimated 100 million antibiotic prescriptions written in the community each year for respiratory tract infections may be unnecessary.” [WOW!]

11) “Decreasing inappropriate antibiotic use by even a small percentage could substantially reduce the number of patients who experience antibiotic-associated adverse events.”

12) “Unnecessary prescribing of antibiotics in the community remains common.”

13) “Research has demonstrated that patients frequently do not understand that antibiotics are ineffective against viral infections.”

14) One-quarter of all estimated ED visits for antibiotic-associated adverse events were by children aged <15 years and the highest rate of ED visits was among infants.

15) “Avoiding unnecessary antibiotic use reduces not only the public health threat of antibiotic resistance but also the risk of drug-related adverse events in individual patients.”