Dispensing Tops List of ADHD Medication Errors

BY PATRICE WENDING
Chicago Bureau

TORONTO — Outpatient medication errors in the treatment of pediatric attention-deficit/hyperactivity disorder are numerous, but few of them seem to result in patient harm, Dr. David Bundy said at the annual meeting of the Pediatric Academic Societies. An analysis of a national error reporting database identified 361 outpatient medication errors involving ADHD medications for children aged 3-17 years from 2003 to 2005 in the U.S. Pharmacopeia MEDMARX database, which contains information on more than 200 million outpatient adverse drug events reported voluntarily by hospitals and health care systems. Four medications accounted for 98% of all medicament errors: dextromethorphan alone and combined with amphetamine (149 or 41%) and propoxyphene (28 or 8%), and atomoxetine (22 or 6%). Methylphenidate errors were more likely to involve prescribing errors compared with dextromethorphan/amphetamine (Adderall, 36% vs. 15%), and less likely to involve interaction problems (49% vs. 6%). Because more dextromethorphan/amphetamine errors occurred during the dispensing phase, those errors were significantly more likely to reach patients than were errors involving methylphenidate (85% vs. 74%), said Dr. Bundy of Johns Hopkins University, Baltimore.

Methylphenidate was three times more likely than were methylphenidate errors to involve the wrong dosage form (22% vs. 8%). Overall, 297 errors reached patients but did not cause harm; 10 errors reached the patient and required monitoring to confirm no harm and/or intervention to prevent harm, and 2 errors occurred that may have contributed to or resulted in temporary harm and required intervention. There were no deaths related to the errors.

ADHD Drugs May Not Outlast Other Therapies

U sing medication to treat children with attention-deficit/hyperactivity disorder offers no long-term advantage over other treatment methods, according to a follow-up study. Dr. Peter S. Jensen and his colleagues at Columbia University, New York, found that children with ADHD who were treated with medication (including stimulants, bupropion, and tiagra)-showed greater improvements in symptoms, compared with children who had been treated with behavior therapy after 14 months of treatment. The authors of the medication algorithm lost that advantage after 3 years, based on data from the Multimodal Treatment Study of Children With ADHD (J Am Acad Child Adolesc Psychiatry 2007;46:989-1002).

The original study included 579 children aged 7-10 years who had been diagnosed with “ADHD combined type.” The children were randomized into one of four treatment groups—intensive multicomponent behavior therapy, intensive medication management, the combination, and routine community care—and they were followed for 14 months. Of those, 485 children, now aged 10-13 years, took part in a long-term follow-up study. All of the children showed some ADHD and oppositional defiant disorder symptoms (ODD) improvement, compared with baseline after 14 months, although the differences were significantly greater in the children in the medication and combination groups after 14 months and 24 months.

But none of the randomized treatment groups showed significant differences on any of five measures of clinical and functional outcomes by 36 months follow-up. The clinical and functional outcomes were parent reports and teacher reports of ADHD and ODD symptoms, reading achievement scores, social skills, and functional impairment. Intensive medication management of ADHD in children may have a long-term impact only if the intensity of the medication use is maintained over time, the researchers wrote.

The study was supported in part by the National Institute of Mental Health.

—Heidi Splete
Dr. Bundy suggested that ADHD medica-
tions themselves may have properties
disposing them to certain types of er-
rors. He described an ADHD “medication
bingo” that includes an array of dosages
and formulations, including Adderall XR
(5, 10, 15, 20, 25, 30 mg); Adderall (5, 7.5,
10, 12.5, 15, 20, 30 mg); methylphenidate
(Concerta) (18, 27, 36, 54 mg); and three
formulations of methylphenidate (Ritalin),
including Ritalin SR and Ritalin LA.

Although few errors involving ADHD
medications appear to be harmful to pa-
tients’ health, the impact on school per-
formance and behavior may be important,
said Dr. Bundy, who disclosed no related
conflicts of interest. Moreover, pediatric
ADHD outpatient medications are asso-
ciated with 3.5 million ambulatory visits
annually in children under 15 years of
age—second only to asthma as a cause of ambulato-
ry care visits for a chronic disease.

Dispensing er-
ors are common,
and there are no
checks and bal-
ances afterward to identify errors, the in-
vestigators found. Efforts aimed at reduc-
ing ADHD medication errors must in-
clude not only physician-based systems,
but also dispensing/pharmacy systems.

Dr. Bundy said:
Dispensing errors accounted for more
than half of the re-
ported errors (218 or
60%), whereas
nearly one-quarter
(84 or 23%) oc-
curred during pre-
scribing, and more
than 1 in 10 (45 or
12%) during administra-
tion. The most
common type of error was improper dose
or quantity (131 or 36%) followed by wrong
dosage form (51 or 14%), prescribing error
(43 or 12%), omission error (39 or 11%),
and wrong patient (32 or 9%).

Limitations of the study included the
lack of a denominator, which made an in-
cidence calculation impossible; no verifi-
cation of report accuracy or completeness;
derunderreporting and reporting bias; a non-
representative sample; and a lack of in-
formation from patients.

“ADHD-related medication error inci-
dence is significant . . . so the importance
of judicious use of ADHD medications is
magnified,” Dr. Bundy said in an inter-
view.

Antidepressant
‘Poop Out’ May
Be Placebo Effect

SAN DIEGO — If a patient with de-
pression comes into the office and says
that his antidepressant has stopped work-
ing, the drug you gave him probably was
never working at all, Dr. Mark Zimmerman
said at the annual meeting of the
American Psychiatric Association.

That patient probably had a placebo re-
response, said Dr. Zimmerman, director of
outpatient psychiatric services at Rhode
Island Hospital, Providence.

Dr. Zimmerman said he was interest-
ed in why antidepressants seem to “poop
out” when patients take them long term,
and so he conducted a meta-analysis of
continuation studies.

He identified four extension studies—
the only type of continuation study that
can be analyzed for its placebo effect-re-
lated relapse; in these studies, the pa-
tients were treated for their acute de-
pression with a selective serotonin
reuptake inhibitor for 6-8 weeks, fol-
lowed by a continuation phase in which
patients continued to take their drug for
up to an additional year.

Dr. Zimmerman pooled the studies’
data and used a method first described in
1993 to estimate the percentage of cases
that can be attributed to a loss of place-
bo response (Am. J. Psychiatry
1993;150:562-5).

Using that formula, he estimated that
84% of the patients who relapsed during
the continuation period were most prob-
ably patients whose response was a place-
bo response.

“The bottom line is that, overwhelm-
ingly, relapse in studies occurs in people
who are placebo responders,” he said. “It
is not due to receptor down regulation or
up-regulation.”

Dr. Zimmerman also noted that con-
tinuation studies are not clinical practice,
and that in clinical practice placebo re-
sponse rates are probably higher than the
24%-36% rate described in trials because
patients have higher expectations than
those enrolled in studies.

“More of our patients are placebo re-
sponders than in clinical trials, and per-
haps we shouldn’t attribute as much of
their gain to the particular molecule they
are taking,” he said.

—Timothy F. Kim

In a 2005 study of physician awareness and adherence to cardiovascular disease (CVD) prevention guidelines, fewer than
1 in 5 physicians were aware that more women than men die
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that affect a woman’s heart.

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heart disease in women. Visit herheartcommunity.com and
sign up today.

study of physician awareness and adherence to
cardioprotective guidelines in women. Circulation
2005;111:1459-150.