

The Medical Letter®

On Drugs and Therapeutics

Published by The Medical Letter, Inc. • 1000 Main Street, New Rochelle, NY 10801 • A Nonprofit Publication

IN THIS ISSUE (starts on next page)

In Brief: Heat and Transdermal Fentanyl p 64

Important Copyright Message

The Medical Letter® publications are protected by US and international copyright laws. Forwarding, copying or any distribution of this material is prohibited.

Sharing a password with a non-subscriber or otherwise making the contents of this site available to third parties is strictly prohibited.

By accessing and reading the attached content I agree to comply with US and international copyright laws and these terms and conditions of The Medical Letter, Inc.

**For further information click: [Subscriptions](#), [Site Licenses](#), [Reprints](#)
or call customer service at: 800-211-2769**

FORWARDING OR COPYING IS A VIOLATION OF US AND INTERNATIONAL COPYRIGHT LAWS

The Medical Letter®

On Drugs and Therapeutics

Published by The Medical Letter, Inc. • 1000 Main Street, New Rochelle, NY 10801 • A Nonprofit Publication

Volume 51 (Issue 1318)
August 10, 2009

www.medicalletter.org

IN BRIEF

Heat and Transdermal Fentanyl

Transdermal fentanyl (*Duragesic*, and others) offers a convenient delivery system for patients with chronic pain¹ but it has some drawbacks. One is that exposing the patch to heat, either from an external source, increased exertion or possibly high fever, could increase release of the drug, which might lead to an overdose and fatal respiratory depression.² A recent article in the NY Times about this problem may have aroused the concerns of some patients using the patches.³

First approved for marketing by the FDA in 1991⁴, transdermal fentanyl provides continuous delivery of the drug for about 3 days. After application of the patch, a depot of fentanyl forms in the upper layers of the skin. Serum concentrations of the drug increase gradually, reaching a peak (C_{max}) in 24-72 hours. According to a pharmacokinetic model mentioned in the labeling, an increase in body temperature to 40°C (104°F) could increase fentanyl serum concentrations by 33%. Local application of heat near or on a fentanyl transdermal patch also increases systemic absorption; in one study, heating the patch during the first 4 hours after application increased maximum serum concentrations nearly three-fold.⁵ Unintentional increases in systemic fentanyl absorption caused by a heating pad, a warming blanket used during surgery and strenuous exertion have led to respiratory depression in 3 patients.⁶ No reports of clinical overdosage caused by fever have been published.

Serious adverse events may require removal of the patch and administration of an opioid antagonist such as naloxone (*Narcan*, and others). Monitoring for hypoventilation or cognitive impairment for at least 24 hours is recommended after removing the patch because fentanyl concentrations decrease slowly (50% decrease in about 17 hours) due to continued systemic absorption from the intracutaneous reservoir.

1. Drugs for pain. *Treat Guidel Med Lett* 2007; 5:23.
2. FDA Alert 7/15/2005; Update 12/21/2007. Information for healthcare professionals: Fentanyl transdermal system (mar-

keted as *Duragesic* and generics). Available at www.fda.gov/cder/drug/InfoSheets/HCP/fentanyl_2007HCP.htm. Accessed July 27, 2009.

3. T Brown. Doctors and nurses, still learning. *New York Times*, April 29, 2009. Available at NYTimes.com. Accessed July 29, 2009.
4. Transdermal fentanyl. *Med Lett Drugs Ther* 1992; 34:97.
5. MA Ashburn et al. The pharmacokinetics of transdermal fentanyl delivered with and without controlled heat. *J Pain* 2003; 4:291.
6. KA Carter. Heat-associated increase in transdermal fentanyl absorption. *Am J Health Syst Pharm* 2003; 60:191.

The Medical Letter®

On Drugs and Therapeutics

EDITOR IN CHIEF: Mark Abramowicz, M.D.

EXECUTIVE EDITOR: Gianna Zuccotti, M.D., M.P.H., F.A.C.P., Harvard Medical School

EDITOR: Jean-Marie Pflomm, Pharm.D.

ASSISTANT EDITORS, DRUG INFORMATION: Susan M. Daron, Pharm.D., Blaine M. Houst, Pharm.D., Corinne E. Zanone, Pharm.D.

ADVISORY BOARD:

Jules Hirsch, M.D., Rockefeller University

Gerald L. Mandell, M.D., University of Virginia School of Medicine

Dan M. Roden, M.D., Vanderbilt University School of Medicine

CONTRIBUTING EDITORS:

Carl W. Bazil, M.D., Ph.D., Columbia University College of Physicians and Surgeons

Vanessa K. Dalton, M.D., M.P.H., University of Michigan Medical School

Eric J. Epstein, M.D. Albert Einstein College of Medicine

David N. Juurlink, BPhm, M.D., PhD, Sunnybrook Health Sciences Centre

Richard B. Kim, M.D., University of Western Ontario

Hans Meinertz, M.D., University Hospital, Copenhagen

Sandip K. Mukherjee, M.D., F.A.C.C., Yale School of Medicine

F. Estelle R. Simons, M.D., University of Manitoba

Jordan W. Smoller, M.D., Sc.D., Harvard Medical School

Neal H. Steigbigel, M.D., New York University School of Medicine

SENIOR ASSOCIATE EDITORS: Donna Goodstein, Amy Faucard

ASSOCIATE EDITOR: Cynthia Macapagal Covey

EDITORIAL FELLOW: Vincent Teo, B.Sc. Phm, Sunnybrook Health Sciences Centre

MANAGING EDITOR: Susie Wong

ASSISTANT MANAGING EDITOR: Liz Donohue

PRODUCTION COORDINATOR: Cheryl Brown

EXECUTIVE DIRECTOR OF SALES: Gene Carbona

FULFILLMENT & SYSTEMS MANAGER: Cristine Romatowski

DIRECTOR OF MARKETING COMMUNICATIONS: Joanne F. Valentino

VICE PRESIDENT AND PUBLISHER: Yosef Wissner-Levy

Founded in 1959 by
Arthur Kallet and Harold Aaron, M.D.

Copyright and Disclaimer: The Medical Letter is an independent nonprofit organization that provides health care professionals with unbiased drug prescribing recommendations. The editorial process used for its publications relies on a review of published and unpublished literature, with an emphasis on controlled clinical trials, and on the opinions of its consultants. The Medical Letter is supported solely by subscription fees and accepts no advertising, grants or donations.

No part of the material may be reproduced or transmitted by any process in whole or in part without prior permission in writing. The editors do not warrant that all the material in this publication is accurate and complete in every respect. The editors shall not be held responsible for any damage resulting from any error, inaccuracy or omission.

Subscription Services

Mailing Address:

The Medical Letter, Inc.
1000 Main Street
New Rochelle, NY 10801-7537

Customer Service:

Call: 800-211-2769 or 914-235-0500
Fax: 914-632-1733
Web Site: www.medicalletter.org
E-mail: custserv@medicalletter.org

Permissions:

To reproduce any portion of this issue, please e-mail your request to: permissions@medicalletter.org

Subscriptions (US):

1 year - \$98; 2 years - \$167;
3 years - \$235. \$49.00 per year for students, interns, residents and fellows in the US and Canada.
CME: \$70 for 26 credits.

E-mail site license inquiries to:

info@medicalletter.org or call 800-211-2769 x315.
Special fees for bulk subscriptions. Special classroom rates are available. Back issues are \$12 each. Major credit cards accepted.

Copyright 2009. ISSN 1523-2859