

The Medical Letter®

On Drugs and Therapeutics

Published by The Medical Letter, Inc. • 145 Huguenot Street, New Rochelle, NY 10801 • A Nonprofit Publication

IN THIS ISSUE (starts on next page)

Nonstandard Uses of Chelation Therapy p 75

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. • 145 Huguenot Street, New Rochelle, NY 10801 • A Nonprofit Publication

Volume 52 (Issue 1347)
September 20, 2010

www.medicalletter.org

Nonstandard Uses of Chelation Therapy

Chelation therapy involves oral administration, intravenous infusion or intramuscular injection of drugs that increase excretion of heavy metals. The Medical Letter's last article on this subject found no evidence that it was effective for treatment of cardiovascular disease.¹ Since then, off-label use of chelation therapy has expanded to include treating children with autism and adults with Alzheimer's disease, cancer and other chronic diseases.²

RATIONALE — Proponents of chelation therapy assert that heavy metal toxicity is an underlying cause of disease and that detoxification with chelation therapy is beneficial. They claim that autism, for example, is caused by accumulation of mercury from thimerosal, a preservative used in several vaccines.³ (Thimerosal was eliminated from virtually all childhood vaccines several years ago, but autism rates have not declined.⁴)

PROVOKED URINE TESTING — The most common diagnostic test preceding chelation therapy is a urine test in which a timed specimen is collected after administration of a chelating agent.⁵ This procedure transiently increases elimination of lead and mercury in urine to levels which chemistry laboratories may report as "elevated" or "very elevated."

CHELATING DRUGS — Penicillamine (*Cuprimine*) is an oral chelating agent approved by the FDA for use in Wilson's disease and rheumatoid arthritis; it can cause fatal aplastic anemia. Succimer (*Chemet*) is an oral chelating agent FDA-approved for use in lead poisoning; it can cause gastrointestinal symptoms, transaminase elevations and neutropenia. Dimercaprol (*BAL*) is a chelating agent formulated in peanut oil that must be injected deep intramuscularly. Used mainly for treatment of arsenic, gold and mercury poisoning, it causes pain on injection, fever in about 30% of children, and an increase in blood pressure accompanied by tachycardia. Edetate calcium disodium (EDTA; *Versenate*) was approved

many years ago to treat lead poisoning and is still used for this purpose. It can cause nephrotoxicity and renal failure.

Edetate disodium (also called EDTA; *Endrate*) was approved many years ago as an emergency treatment for hypercalcemia. When injected intravenously, it binds to calcium and can cause fatal hypocalcemia. In 2008, after two deaths were reported,⁶ the FDA issued a public warning and the manufacturers of the drug withdrew their New Drug Applications, which means that it is no longer FDA-approved or legally marketable for any purpose, but some compounding pharmacies still prepare and sell it.

COSTS — The protocols used by chelationists differ from standard protocols for treating lead poisoning. Standard therapy is guided by blood levels and completed within a few weeks. Chelation therapy for unsubstantiated uses may be administered over many months or even years. Courses of 20-50 infusions are common, according to Medical Letter consultants, and some patients have received many more. Intravenous chelation commonly costs from \$100 to \$300 per session, but patients have reported spending over \$100,000 for additional nonstandard products and services at chelation clinics.

CONCLUSION — Medical Letter consultants believe that the use of chelation therapy in non-standard protocols for unsubstantiated indications should be discouraged. The results of provoked urine testing are not an acceptable basis for such treatment. □

1. EDTA chelation therapy for atherosclerotic cardiovascular disease. *Med Lett Drugs Ther* 1994; 36:48.
2. PM Barnes et al. Complementary and alternative medicine use among adults and children: United States, 2007. *Natl Health Stat Report* 2008; 12:1.
3. S Bernard et al. Autism: a novel form of mercury poisoning. *Med Hypotheses* 2001; 56:462.
4. E Fombonne. Thimerosal disappears but autism remains. *Arch Gen Psychiatry* 2008; 65:15.
5. American College of Medical Toxicology position statement on post-chelator challenge urinary metal testing. *J Med Toxicol* 2010; 6:74.
6. CDC. Deaths associated with hypocalcemia from chelation therapy – Texas, Pennsylvania, and Oregon, 2003-2005. *MMWR Morb Mortal Wkly Rep* 2006; 55:204.

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.

CONSULTING EDITOR: Brinda M. Shah, Pharm.D.

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

Jules Hirsch, M.D., Rockefeller University

David N. Juurlink, BPhm, M.D., Ph.D., 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

Dan M. Roden, M.D., Vanderbilt University 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

Arthur M. F. Yee, M.D., Ph.D., F.A.C.R., Weil Medical College of Cornell University

SENIOR ASSOCIATE EDITORS: Donna Goodstein, Amy Faucard

ASSOCIATE EDITOR: Cynthia Macapagal Covey

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.
145 Huguenot St. Ste. 312
New Rochelle, NY 10801-5241

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 - \$189;
3 years - \$279. \$49.00 per year for
students, interns, residents and
fellows in the US and Canada.

E-mail site license inquiries to:

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

Copyright 2010. ISSN 1523-2859