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Research Update Arthur G. Lipman, PharmD, Department Editor
Innovations in Practice Richard B. Patt, MD, Department Editor

OTFC: A New Opioid Delivery System

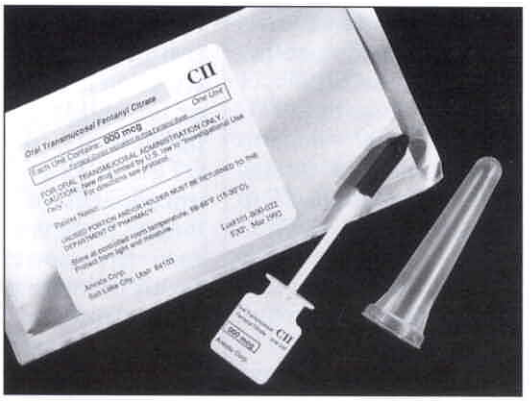
James B. Streisand, MD

Department editors' note: This issue of APS Bulletin *combines the "Research Update" and "Innovations in Practice" departments to present a review of the new opioid dosage form, oral transmucosal fentanyl citrate (OTFC). The article was written by an academic anesthesiologist who has conducted clinical studies of OTFC and includes input from a staff member of Anesta Corp., the developer of the product.*

Fentanyl is a potent mu (μ) opioid receptor agonist that has been used for decades intraoperatively because of its rapid onset and brief duration of action when administered intravenously. Pharmacokinetic characteristics that favor the use of intravenous fentanyl in this manner also favor its use for short duration analgesia, such as that needed for brief, procedure-induced pain and for "incident" or "breakthrough" pain experienced by patients already receiving regularly scheduled analgesics. Recently, the first novel dosage form of fentanyl, a transdermal system, was approved for the management of chronic pain requiring opioid therapy. The transdermal delivery system effectively converts this intrinsically short-acting drug to one that produces up to 72 hours of analgesia, once steady state levels are achieved. Readers should note the marked differences in the pharmacokinetic properties of fentanyl when it is given via intravenous/intramuscular, transdermal, and oral transmucosal routes.

We believe that the uniqueness of the new dosage form of fentanyl warrants its consideration here both as a new drug dosage form and as a practice innovation. We invite readers to comment on this new dosage form as well as on the integration of two APS Bulletin *departments to permit a more detailed discussion of a topic with both research and practice implications.*

Oral transmucosal fentanyl citrate (OTFC [Fentanyl Oralet®]), was recently approved for human use by the U.S. Food and Drug Administration (FDA) as an anesthetic premedicant. It is a novel, noninvasive dosage form of fentanyl that is designed to induce sedation, anxiolysis, and analgesia in children and adults. OTFC units consist of a fentanyl-impregnated sweetened lozenge on a plastic handle (Figure 1). As a patient consumes OTFC and it dissolves in saliva, a proportion of the fentanyl diffuses across the oral mucosa; and the rest is swallowed and partially absorbed in the stomach and intestine.



Anesta Corp.

Figure 1. A Fentanyl Oralet® unit

Recently, OTFC gained regulatory approval for use as a premedicant before surgery and for use in monitored anesthesia care. OTFC will soon be available as 200-, 300-, and 400-μg dosage units. Currently, approval is limited to the administration of a single dose of OTFC. Further studies establishing the safety and efficacy of multiple dose regimens for acute pain are ongoing. This review discusses the clinical pharmacology of OTFC and prognosticates future applications of this unique delivery system.

Pharmacokinetics

Fentanyl from OTFC (15 μg/kg) is absorbed rapidly through the oral mucosa with peak plasma concentrations of fentanyl (2.8 ± 1.0) occurring 22 minutes after administration (Figure 2) (Streisand, Ashburn, & LeMaire, 1989). Analgesic plasma concentrations (about 1 ng/mL) are usually achieved within 15 minutes of administration, although Fine, Marcus, De Boer, and Van der Oord (1991) reported subjective pain relief within the first 5 minutes of administration. While absorption from swallowed fentanyl contributes little to the peak concentration, it is

Department editor's note: We welcome a guest article for this issue prepared by staff at the Lewis-Gale Pain Center in Roanoke, VA: John Heil, DA, licensed clinical psychologist and coordinator of psychological services; Susan Wirt, CRRN, marketing coordinator for rehabilitation services; and Gail Minter, RN, coordinator of clinical services. The article was occasioned by an art show featuring the work of artists participating in the center's rehabilitation program.

Healing Art: Incorporating Visual Arts in the Healing Process

John Heil, DA; Susan Wirt, CRRN; Gail Minter, RN

Educating members of the medical community and the general public about chronic pain is an important element in facilitating access to treatment. However, given the nature of chronic pain, it is a formidable task to capture the attention of the general public and healthcare providers as well as deliver a meaningful message. For four patients under treatment at the Lewis-Gale Pain Center in Roanoke, VA, the visual arts have taken center stage in their lives and rehabilitation. The idea of an art show was conceived as an opportunity to draw attention to the patients' work at rehabilitation, and at the same time, to educate the community about the complexity of chronic pain and the benefits of a rigorous rehabilitation-oriented approach to treatment. The patients involved were uniformly enthusiastic.

A statement about the show, along with background information supplied by the artists themselves, was prepared in conjunction with the coordinator of psychological services. Work was selected for display in the pain center and an opening reception was planned. Announcements were distributed to the family and friends of the artists, other pain patients, and members of the local rehabilitation and medical communities. Arrangements for hanging art work at the opening reception, announcements, and mailings were done by the coordinator of clinical services, and the marketing coordinator for rehabilitation services. The show was attended by local artists as well as the art critic of the local newspaper who favorably reviewed the show in his column.

About the program

The program for the show read as follows:

The exhibit, "Healing Art," is about the healing process and the role that artistic expression has played in the lives of four clients of the Lewis-Gale Pain Center.

Medicine is part science and part art (in the broadest sense of these terms). The greatest scientific advances of 20th-century medicine are visibly manifested in the technology which fills the cathedrals of science—the modern hospital. Yet the artistic element of the healing process—intuitive, spontaneous, and personalized—remains as important as it was 10 years ago, 100 years ago, 1,000 years ago! In many ways, the art of medicine is more a mystery than a science whose advance is marked by a more tangible process of research and discovery. Through their love of and work with the visual image, each of these individuals has participated in the art of their own healing.

About the artists

The following background statements were written by the artists:

William: "William is a visual artist (and musician) whose work has been shown in juried competitions. Continuing chronic pain limited the opportunity for the pursuit of art and music that helped William keep his life in balance. His abstractions convey his vision of the experience of pain and the healing process of biofeedback, psychology, and physical therapies. Continuing his artistic endeavors has helped put William in touch with the pacing, rhythm, and self-awareness that are the foundation of his ongoing rehabilitation."

Elizabeth: "Elizabeth is an artist-naturalist whose work has been featured in numerous regional shows. Extensive therapeutic surgery resulted in diminished motor control in her right hand and arm. This severely limited Elizabeth's ability to produce the precise and detailed work that characterized her style. Return to her art was a head-on confrontation with the limits of her condition, bridging art and rehabilitation. This sparked a search for new direction in art and renewed meaning in life."

Grace: "[After] Grace received her art degree..., she directed her sense of composition and design into the practical arts of remodeling and interior design. Since a motor vehicle accident deprived Grace of that avenue of expression, she has rediscovered art as therapy. As part of her rehabilitation, she has been teaching art to 'special populations' and has returned to school to pursue a degree in art therapy." (The drawing below is a sample of this artist's conception of pain.)

Grace captured her concept of pain in this dramatic drawing with lightning-like lines.

Jerry: "Jerry has long been interested in painting and drawing, though he has not had the opportunity for formal training. A job-related injury now undermines his ability to work at the construction trades that have been his livelihood and for a time dampened his desire to paint and draw. A renewed enthusiasm for his art was triggered by [his] desire to give something back to the treatment providers that have given so generously to him during his rehabilitation."

Benefits to the patients

In retrospect, the greatest benefit was to the patients who showed their art. In debriefings, conducted with the psychologist, the patients described their experience as challenging, but powerfully reaffirming. Because of the attendance at the opening, local newspaper coverage, and reports about the event in Lewis-Gale hospital publications, the educational objectives of the program were met, and a valuable marketing opportunity was provided for the pain center.

Department editor's addendum

As a result of follow-up discussions with John Heil, we thought it might be interesting to ask *APS Bulletin* readers the following questions:

1. To what extent is art therapy included in rehabilitation programs for chronic pain patients throughout the country?
2. What works of art/sculpture, past or present, have depicted pain? (It would be interesting to compile a list.)
3. Would there be any interest in putting together a show and/or a catalog illustrating the artwork of chronic pain patients (not only patients who are professional artists)? (Such an exhibit might be presented at an APS scientific meeting.)

Send your comments to Joan Wilentz, *APS Bulletin,* 5700 Old Orchard Road, First Floor, Skokie, IL 60077-1057.

Note: Opinions expressed in this column are those of the authors and department editor; they do not necessarily reflect those of the National Institute of Dental Research, with which the department editor is affiliated. ○

State Cancer Pain Initiatives Update

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available (Ferrell, 1993).

Work conducted by the AHCPR cancer pain guideline panel will begin to address a framework for analyzing the costs related to cancer pain and to promote increased discussion of these issues so that pain achieves recognition and the cost of relieving pain as well as the cost of failing to relieve pain are vocalized in this era of health reform and cost containment (Ferrell & Griffith, in press).

Recognizing the moral outrage of human suffering

The failure to deal with relief of pain adequately is no less than a social disgrace. Ignoring human suffering and failing to treat pain—especially given the status of technology and the level of health care in this country—are moral outrages. It is important for healthcare professionals not to lose sight of the underlying human suffering that results from our failure to respond to pain. The advances in treatment and the priority given to current health problems such as AIDS and breast cancer have emerged not only because of science but also because of the recognition of the moral issues related to our past failure to deal with these problems. We must remain not only dedicated clinicians and scientists but also moral agents as we seek to revolutionize the treatment of pain.

Betty R. Ferrell is an associate research scientist at City of Hope National Medical Center in Duarte, CA.

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1994 APS Poster Reminder

Poster abstracts for the 13th Annual Scientific Meeting of the American Pain Society are due May 31. For more information, contact Nicki LaCroix, APS Education Department, 5700 Old Orchard Road, First Floor, Skokie, IL 60077-1057, 708/966-5595 ext. 2275, fax 708/966-9418.