

Special Interest Articles:

- Fentanyl Transdermal Patches
- Eye and Ear Medicines
- New Tablet for Insomnia

Did you know?

More than 16 million Americans suffer from a disease caused by smoking (resulting in nearly half million deaths), and tobacco use causes more than 5 million deaths per year worldwide.

Fentanyl Transdermal Patches- How do they work ?

Use of Fentanyl transdermal system is indicated in patients who are already receiving opioid therapy, who have demonstrated opioid tolerance, and who require a total daily dose at least equivalent to a transdermal system dose of 25 mcg/hr (e.g. a patient that has been taking 30 mg of oxycodone orally daily for a week or longer would qualify). Fentanyl is a pure opioid agonist of high potency (80 to 100 times more potent than morphine) with a short duration of action. Serum concentrations gradually decline over 20 to 27 hours following transdermal fentanyl removal; patients with symptoms of opiate overdose will need to be observed and treated for at least 8 hours after the patch is removed and skin is washed. RPCC algorithm states immediate referral to ED for all pediatric patients exposed to any opiate transdermal patch (oral or dermal).

Two types of fentanyl transdermal patches are commercially available: membrane controlled **reservoir** system and monolithic **matrix** system. For reservoir patches, active drug is contained in a reservoir and delivered to the skin via a rate controlling membrane. For matrix patches, drug is integrated into an adhesive polymer layer. This solid matrix layer is applied directly to the skin and the drug is released with the components of the matrix controlling the rate of drug delivery. Misusing of transdermal patches can result in under- or over-dosing. For example, using an electric blanket, heating pad, saunas, hot tubs, or heated water beds while using a fentanyl patch can increase drug absorption and cause toxicity. Also, patients who have been prescribed fentanyl transdermal system and develop a fever should be monitored for opioid side effects. Serum fentanyl concentrations increase by one-third for a body temperature of 40° C (104° F) due to temperature-dependent increases in fentanyl diffusion from the system and increased skin permeability. In addition, patients should never cut or alter any drug patch due to erratic drug delivery.

Depending on skin type, fentanyl patches may be hard to see on the body. Poor visibility of the patches may make it difficult for healthcare practitioners to determine whether or not a patient has a patch affixed to the skin. Poor patch visibility also may hinder the ability of emergency personnel to properly identify and treat patients who suffer from a fentanyl overdose. The majority of case reported medication errors seen with fentanyl have involved multiple patches. The risk of harm from multiple fentanyl transdermal patches stems from the fact that a significant amount of medication resides in a patch even after the intended period of application had expired. For example, at a delivery rate of 50 mcg/hour for the recommended duration of application of 3 days, 1,400 mcg of fentanyl (28% of the total original fentanyl content) would remain in the Duragesic patch after 72 hours.

Finally, children who witness their parents applying patches or taking medications could learn by example. Children could equate applying a patch with putting on a sticker, Band-Aid™ or temporary tattoo. FDA recommends disposing of used patches by folding them in half with the sticky sides together, and then flushing them down a toilet. They should not be placed in the household trash where children or pets can find them.

The Ins and Outs of Eye and Ear Meds

What's the difference between eye drops and ear drops?

Although eye drops can generally be used in the ears, ear drops should never be used in the eyes. One reason for this is that eye drops must be sterile. Some ear drops are sterile (e.g., Ciprodex, Floxin Otic [U.S.], etc), but some are not (e.g., Cipro HC [U.S.], etc). Plus, eye tissue is much more sensitive than ear tissue. Ear drops are generally more acidic than eye drops, and can be irritating to the eyes.

Prescribers might write prescriptions for eye drops to be used in the ears because in

some cases, eye drops are less expensive. But eye drops can't automatically be substituted for ear drops to help patients save money. Eye drops must be specifically indicated on the prescription. There are reports of errors where ear drops have been administered into patients' eyes. Putting these products in the eyes can cause redness and swelling of the eyes, and blurred vision. Flushing the eyes with water or saline, and a visit to the emergency department or ophthalmology clinic might be required.

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FDA approves new type of sleep drug, Belsomra

Belsomra (bell- SOM-rah, suvorexant) is an orexin-receptor antagonist and the first drug in this class to be approved by the FDA to treat insomnia. Orexin neurotransmitters promote wakefulness so blocking them can act as a temporary "shut-off" switch to help people sleep. Belsomra is available as 5 mg, 10 mg, 15 mg, and 20 mg film-coated tablets in 30 unit-of-use blister packs. Suvorexant is a CNS depressant with a long half-life (average 12 hours) and can produce next-day, daytime drowsiness. Like other sleep

medicines, there is a risk from Belsomra of sleep-driving and other complex behaviors while not being fully awake, such as preparing and eating food, and making phone calls. Because suvorexant produced effects indistinguishable from zolpidem (Schedule IV), the DEA has classified suvorexant as a Schedule IV drug. Caution, Poison Index has it listed as a Symptomatic Drug Ingestion and has not updated to new management "SUVOREXANT".