



Grand Teton, Wyoming USA

## PIC QUESTION OF THE WEEK: 1/09/12

Q: Can fentanyl be prescribed for a patient allergic to codeine?

A: Opioid analgesics are among the most commonly prescribed drugs in the United States. True *allergic* reactions to opioid analgesics are extremely rare, dependent upon antibody (usually IgE/IgG), and triggered by histamine and other mediators. Immediate reactions (e.g. anaphylaxis) are associated with contraction of smooth muscle, vasodilation, increased mucous secretion, and enhanced vasopermeability. More frequently, opioids such as morphine and codeine cause direct release of histamine from mast cells. These reactions are considered *idiosyncratic*, independent of antibody, and based on individual patient susceptibility. Direct release of histamine is the most common mechanism for the development of urticaria, pruritus, etc. in patients receiving *natural* opioids such as morphine and codeine. Opioid analgesics are typically classified according to the source of the chemical or the presence of structurally related groups (see table). In general, the risk of cross-reactivity is thought to be less likely among agents from a different source or structural class. If a reaction to morphine or codeine is severe in nature, substituting a synthetic or semi-synthetic agent or a structurally dissimilar compound appears to reduce the risk of cross-reactivity. It should be noted that although tramadol is classified as a synthetic opioid derivative, there have been cases of severe hypersensitivity reactions associated with its use. These cases have occurred in patients with and without a history of allergic reactions to opiates. Thus tramadol would probably not a good first alternative in a patient with a history of a severe reaction to this group of drugs. A similar approach might be considered with tapentadol. In cases of possible drug allergy, institution of a similar drug should always be undertaken with close monitoring, slow dosage escalation, and ready access to emergency medications. In this case, a phenylpiperidine derivative such as fentanyl would seem reasonable to prescribe for a patient with codeine allergy.

Compound	Chemical Source	Structural Class
Morphine	Natural	Phenanthrene (morphine-like agonists)
Codeine	Natural	Phenanthrene
Hydrocodone	Semi-synthetic	Phenanthrene
Hydromorphone	Semi-synthetic	Phenanthrene
Oxycodone	Semi-synthetic	Phenanthrene
Oxymorphone	Semi-synthetic	Phenanthrene
Meperidine	Synthetic	Phenylpiperidine (meperidine-like agonists)
Fentanyl	Synthetic	Phenylpiperidine
Methadone	Synthetic	Diphenylheptane (methadone-like agonists)
Tapentadol	Synthetic	Unique
Tramadol	Synthetic	Unique

### References:

- Analgesic options for patients with allergic-type opioid reactions. Pharmacist's Letter/Prescriber's Letter 2006;22(2):220201.
- Morphine: opioid analgesics – cross allergenicity. In: DRUGDEX® System [Internet database]. Greenwood Village, Colo: Thomson Reuters (Healthcare) Inc. Updated periodically.

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