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L|E|C|O|M Point

WELCOME TO LECOM POINT, A DRUG INFORMATION SOURCE THAT IS DIRECT AND TO THE POINT

Top Ways to Use CDIR

Some of our readers have asked what services we provide at CDIR. We offer these suggestions on some ways to utilize CDIR services:

- Ask us about herbals. We provide evidence-based information on safety and efficacy of complementary medicine products.
- Ask us about new drugs. We help determine where new drugs fit into current therapy based on safety, efficacy and cost-effectiveness.
- Ask us about drugs-of-choice. We use your patient specific information to help you determine which medication may be most appropriate for a given condition using a reliable evidence-based approach.
- Ask us about cost-effective approaches to care. We'll find available data to help you determine the most economic way of caring for your patients.
- Ask us about controversial topics. We provide evidence-based information on clinical questions that may be controversial.
- Ask us about clinical updates. CDIR staff can provide information regarding updates in therapeutics, guidelines, or FDA warnings.
- Ask us about what you saw in the news. CDIR staff can help wade through drug topics discussed by the media and give the whole story.

Feel free to contact us with drug information questions, general questions or comments at cdir@lecom.edu.

New Drug for COPD

Arcapta® (indacaterol) is now the first once-daily, long-acting beta-2 agonist (LABA). FDA approved indacaterol in July 2011 for maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD).[1,2] The medication received European approval in 2009.

COPD is the fourth leading cause of death in the United States according to the Centers for Disease Control and Prevention.[3] While smoking cessation remains a primary goal in COPD management, current guidelines recommend regular treatment with long-acting inhaled bronchodilators for patients with moderate and severe symptoms.[4] Currently available long-acting inhaled bronchodilators are the anticholinergic, tiotropium, and the LABAs, salmeterol and formoterol.

Safety and efficacy of indacaterol were demonstrated in six trials that included 5,474 patients ages 40 and up with a clinical diagnosis of COPD.[2,3] Indacaterol is not approved for the treatment of asthma and has the same black box warning for increased risk of asthma death required for all LABAs.[2]

The approved U.S. treatment dose of indacaterol is 75mcg (contents of one capsule) inhaled once daily at the same time every day with the Neohaler device.

Indacaterol offers another treatment option for the management of COPD, but only two of the six confirmatory trials that led to its approval utilized the approved dose of 75mcg daily. Remaining trials included doses similar to those approved for use in Europe including 150, 300, and 600mcg daily.

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These trials enrolled patients with a clinical diagnosis of COPD, aged 40 years or older, smoking history of at least 10 pack years, and post-bronchodilator FEV_1 less than 80%.[1] The primary efficacy endpoint was 24-hour post dose trough FEV_1 after 12 weeks of treatment with other endpoints including rescue medication use, symptoms, and health-related quality of life.[1] In all trials, indacaterol demonstrated significantly greater 24-hour post-dose trough FEV_1 compared to placebo at 12 weeks.[1]

Place in Therapy

Indacaterol offers an alternative treatment option for patients with moderate to severe symptoms associated with COPD, such as wheezing and breathlessness. The once-daily dosing of indacaterol is the most obvious advantage to its use over other currently available LABAs, comparable to tiotropium's once-daily dosing. A trial conducted to assess the efficacy of indacaterol vs. tiotropium demonstrated that indacaterol dosed at either 150 or 300mcg daily was found to be at least as effective as tiotropium 18mcg daily in its effect on symptoms and health status.[5]

Currently, the main limitation to routine use of indacaterol is the approved dose of 75mcg daily, which is below the dose used in the majority of clinical trials assessing indacaterol efficacy. The approved dose was based in part on a blinded meta-analysis comparing indacaterol-treated patients to controls with respect to composite incidence of COPD-related deaths, hospitalizations, and intubations.[6]

Indacaterol should be available in early 2012 and may be and alternative for patients taking a twice-daily LABA and struggling with compliance. While indacaterol is an alternative to tiotropium, evidence of efficacy at the approved 75mcg dose is lacking and requires further study before first-line use .

Click for References

Reader Question: Ondansetron for Nausea

Reader Question:

What is the most appropriate way to prescribe ondansetron for ordinary or post op nausea?

Response:

Brian Welch, 2012 PharmD Candidate

Postoperative nausea and vomiting (PONV) occurs in 30% of surgical patients and is a major concern for patients as they contemplate surgery[1]. Risk factors for development of PONV include female gender, history of motion sickness or PONV, type and duration of surgery and use of postoperative opioids. Development of PONV can increase discomfort, dissatisfaction, length of stay and overall health care costs for patients.[1]

Ondansetron is indicated in the United States for the prevention of postoperative nausea and vomiting (PONV) in adults and children.[2] Suggested oral dosing for adults is a single 16 mg dose one hour before anesthesia with no recommendations for the pediatric population. Injectable ondansetron may be given as a 4 mg dose infused over 2 -5 minutes for patients older than one month and a 1 mg/kg dose for newborns to infants one month old.[3]

Ondansetron is a selective 5-HT3-receptor antagonist that blocks serotonin peripherally on vagal nerve terminals and centrally in the chemoreceptor trigger zone. The onset of action is about 30 minutes with metabolism occurring in the liver. Bioavailability is around 56% to 71% via the oral route. Ondansetron's half-life is 3 to 6 hours at the maximum dose in chemotherapy patients of 32 mg daily.[2]

One study looked at PONV after cardiac surgery where 4 mg of ondansetron IV was given at the end of surgery and 12 mg was added to the patients' PCA pump which had a pre-set volume for all patients.[4] Ondansetron significantly reduced PONV when compared to placebo in these patients.[4] Another study looked at ondansetron 4 mg IV given to shoulder surgery patients 30 minutes before the end of their surgery.[5] This study also showed a significant reduction in PONV when compared to placebo.[5]

According to consensus guidelines for managing PONV, IV ondansetron is most effective when given at the end of surgery and shows more of an anti-vomiting effect than anti-nausea.[1,6] The number needed to treat (NNT) for IV ondansetron 4 mg is approximately 7 for the prevention of nausea, indicating 7 patients would need to be treated with ondansetron 4mg IV to prevent one patient's nausea[6]. The NNT to prevent one case of postoperative vomiting is 6.[1] The 8 mg dose has a NNT of 6 for the prevention of nausea and a NNT of 5 for the prevention of vomiting.[1] The guidelines suggest that if PONV occurs within 6 hours after surgery, patients should not receive a repeat dose of ondansetron if it was used prophylatically.[1] For episodes occurring more than 6 hours after surgery, patients can be treated with a repeat dose of IV ondansetron 4-8 mg.[1]

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Ondansetron has a favorable side effect profile[1,6] The number needed to harm (NNH) with a single dose of ondansetron is 36 for headache indicating one case of headache for each 36 patients treated with ondansetron. The NNH is 31 for increased liver enzymes and 23 for constipation.[1] According to the International Anesthesia Research Society guidelines on PONV, if prophylaxis with ondansetron fails <6 hours after surgery, a different class of antiemetic should be given, however a dose of ondansetron can be repeated if it has been >6 hours after the end of surgery.[1] If the repeat dose fails to adequately control nausea and vomiting, another antiemetic may be chosen to alleviate further nausea and vomiting.[1]

Literature pertaining to treatment of general nausea and vomiting with ondansetron is limited. Ondansetron is not specifically indicated for general nausea and vomiting. Several studies have shown some utility of ondansetron when used in a pediatric population to treat vomiting in acute gastroenteritis. The mechanism of action of ondansetron suggests it would have a possible role in treating general nausea and vomiting as it acts on the chemoreceptor trigger zone that controls vomiting.[1]. One of the primary sites of action of the chemoreceptor trigger zone is mediated by the 5-HT receptor. Ondansetron may play a role in inhibiting the chemoreceptor trigger zone, which may help to control general N/V in patients.[4]

Click for references

March New Drug Approvals

- Ibandronate generic for Boniva
- Beclomethasone nasal spray (Qnasl)
- Peginesatide (Omontys) for anemia in chronic kidney disease
- Lucinactant (Surfaxin) to prevent respiratory distress in premature infants
- Pancrelipase (Ultresa and Viokace)
- Alendronate (Binosto) effervescent tablets for osteoporosis

Drug Shortages

- Tetracycline tablets (Watson and Teva)
- Inhaled acetylcysteine solution
- Betamethasone oral solution (Celestone)
- Digoxin injection
- Diltiazem injection
- Fentanyl citrate injection
- Insulin glulisine (Apidra)

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CENTER FOR DRUG INFORMATION AND RESEARCH

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