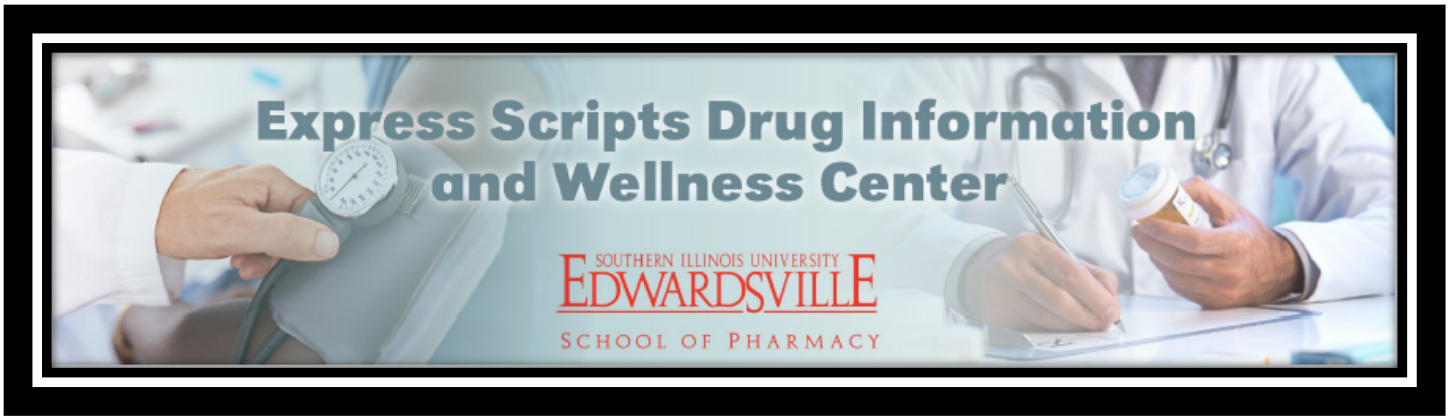

July 2019

Inside This Issue

Thank you to Vincent Chau, Terah Coughlin, and Alanna Pomes for their contributions to this newsletter.

Pharmacy in the News:

Co-prescribing Mandates Seem to Increase Naloxone Dispensing

- Some states have begun mandating that Doctor's co-prescribe Naloxone with opioid prescriptions, especially in high-risk patients.
- High-risk patients could include patients take over 60 morphine milli-equivalents, con-currently taking other respiratory depressants such as benzodiazepines and patients with opioid-use disorder.
- Better equips patient and family to counter overdose complications, including slowed and stopped breathing.
- JAMA conducted a study that showed that the mandates increased the naloxone dispensing by 7.75 times.

https://www.pharmacist.com

HHS Finalizes Rule Requiring Manufacturers Disclose Drug Prices in TV Ads to Increase Drug Pricing Transparency

- Part of the American Patients First blueprint.
- Direct-to-consumer advertising is now required to disclose WAC if the cost is greater than or equal to $35 for a month's supply or the full course of therapy $35 for
- Rules goes in effect 60 days after publication in the federal register.
- Applies to drugs covered under Medicaid/Medicare.
- Office of Prescription Drug Promotion NOT required to review the prices unless the price information also includes claims of safety or efficacy.

https://www.hhs.gov/about/news/index.html

Facebook, YouTube Overrun With Bogus Cancer-Treatment Claims

- Facebook and YouTube have had many false health claims showing up on people's feeds like both black garlic and baking soda being able to cure cancer.
- An oncologist association conducted a survey to see how much of the public think that unproven therapies can cure cancer, and 40% of Americans believe this is true.
- JAMA published article that show that patients who choose alternative therapies are twice as likely to die, as people are who chose to participate in traditional cancer treatment.
- Facebook and YouTube are both changing the method that chooses what ads and articles show up on the user's pages, therefore decreasing the false health claims that show up.

https://www.wsj.com

Newly Approved Drugs

Recently Approved Drugs:

Skyrizi (risankizumab-rzaa), AbbVie Inc.; 4/23/2019

Indication: To treat moderate-to-severe plaque psoriasis in adults who are candidates for systemic therapy or phototherapy.

MOA: Fully humanized IgG1 mAB that selectively binds to the p19 subunit of interleukin 23 (IL-23) and inhibits interaction with IL-23 receptor.

Strength; Dosage Form: 75 mg/0.83 mL; Injectable

Vyndaqel (tafamidis meglumine), Pfizer Inc.; 5/3/2019

Indication: To treat heart disease (cardiomyopathy) caused by transthyretin mediated amyloidosis (ATTR-CM) in adults.

MOA: Specific stabilizer of transthyretin, slowing dissociation of tetramer into monomers.

Strength; Dosage From: 20 mg; Oral capsule

Piqray (alpelisib), Novartis Pharmaceuticals Corp.; 5/24/2019

Indication: To treat breast cancer.

MOA: Phosphatidylinositol 3-kinase (PI3K) inhibitor.

Strength; Dosage Form: 50mg, 150 mg, 200 mg; Oral tablet

Polivy (polatuzumab vedotin-piiq), Genentech USA Inc.; 6/10/2019

Indication: To treat adult patients with relapsed or refractory diffuse large B-cell lymphoma.

MOA: CD79b-directed antibody-drug conjugate with activity against dividing B cells.

Strength; Dosage Form: 140 mg; Injectable

Vyleesi (bremelanotide), AMAG Pharmaceuticals Inc.; 6/21/2018

Indication: To treat hypoactive sexual desire disorder in premenopausal women.

MOA: Melanocortin receptor (MCR) agonist that nonselectively activates several receptor subtypes.

Strength; Dosage Form: 1.75 mg/0.3 mL; Subcutaneous injection (Autoinjector)

Xpovio (selinexor), Karyopharm Therapeutics Inc.; 7/3/2019

Indication: To treat adults with relapsed or refractory multiple myeloma (RRMM).

MOA: Selective inhibitor of nuclear export (SINE).

Strength; Dosage Form: 20 mg; Oral tablet

Recarbrio (imipenem, cilastatin, and relebactam), Merck & Co Inc.; 7/16/2019

Indication: To treat complicated urinary tract and complicated intra-abdominal infections.

MOA: Imipenem is a beta-lactam (inhibit cell wall synthesis), cilastatin prevents the breakdown of imipenem, and relebactam is a new beta-lactamase inhibitor.

Strength; Dosage Form: To be announced

Recently Approved Generics:

- Lyrica (pregabalin) – 7/19/2019
- Aczone (dapsone) Gel 7.5% - 6/26/2019
- Mycamine (micafungin) for injection – 5/17/2019
- Delzicol DR (mesalamine DR) – 5/9/2019
- Tracleer (bosentan) – 4/26/2019
- Banzel (rufinamide) – 4/23/2019
- Afinitor Disperz (everolimus) – 4/19/2019
- For full list, visit FDA's website for new generics

Professional Writing Tips

When to pluralize with S:

- Uppercase abbreviations, ex. ECG → ECGs, IV → IVs
- Double-digit numbers, ex. 20 → 20s, 40 → 40s

When to pluralize with 'S:

- Lowercase abbreviations, ex w.b.c. → w.b.c.'s, c.o.d. → c.o.d.'s
- Single-digit numbers, ex. 5 → 5's
- Single letters, ex. A → A's

Topic Sentences:

- Topic sentences state the topic of the paragraph and/or how you will address the topic.
- Topic sentences may be more general and elaborated on in the body of paragraph.
- Be sure that all body sentences of a paragraph relate back to the topic sentence.
- Try to bold the topic sentence of each paragraph as a mental cue when writing the body sentences.

Useful Grammar Tips/ Refreshers:

- Between: when referring to two groups; Among: when referring to three or more groups
- Its vs. It's: Its is a possessive pronoun. It's is the contraction of it and is. If you can replace the word you want with "his" or "her" use its.
- Semicolon: these separate items in a list when one or more of the items includes a comma or used to combine two sentences or independent clauses.

Useful Apps for Cost Saving

GoodRx & Rx Saver

- Provides instant coupons for patients based off of medication name, dose, and quantity
- Competitive pricing between the two apps
- Great option for patients that do not have insurance
- GoodRx includes pet only medications

Blink Health

- Provides coupons for patient
- Patient has to get coupon and pay for the medication through the app
- Can be useful for long-term use, but for short-term use GoodRx or Rx Saver would be best

List of Freely Available Apps July 2019

Drug Information Question of the Month

Question: **A 33 yo female patient has a history of sleeve gastrectomy (SG). She is currently 28 weeks pregnant and her vitamin A level is 15 (normal limits 38-98). OB is worried about low level and is considering increasing vitamin A dose from 4000 IU to 9000 IU of vitamin A. What form of vitamin A is recommended in patients who have a deficiency after SG? Is there anything in the literature about pregnant patient's who have a vitamin A deficiency following SG? When should we re-pull a vitamin A level, to ensure we are giving adequate supplementation?**

First, it is imperative that a pregnant patient is not in vitamin A excess **OR** have a vitamin A deficiency. Vitamin A in excess may potentially increase risk of fetal malformation.[1] Maternal vitamin A deficiency may cause nyctalopia (night blindness) in the mother. Maternal vitamin A deficiency is also associated with increase in maternal mortality and pre-term birth.[1] Early signs and symptoms of vitamin A deficiency in the mother include nyctalopia, Bitot's spots (foamy white spots on sclera of eye), endophthalmitis, poor wound healing, hyperkeratinization, and loss of taste. Advanced signs and symptoms of vitamin A deficiency include corneal damage, xerosis, keratomalacia, perforation, and blindness.[2]

Adequate vitamin A levels is significant during the second and third trimester for normal lung development and maturation, vision, and immunity.[3] Vitamin deficiency is most common during the third trimester due to accelerated fetal development.[4]

The American Society for Metabolic and Bariatric Surgery Nutritional Guidelines had different normal values for vitamin A than the ones you mentioned. Vitamin A is measured by plasma retinol. The normal range listed was plasma retinol 20-80 mcg/dL. The critical range listed was plasma retinol < 10 mcg/dL.[2] With that being said, the patients lab value of 15 (if it is in mcg/dL) is not as far below the lower threshold of normal as compared to the normal range you mentioned.

In regards to pregnant patients who have vitamin A deficiency following a bariatric surgery, a study shows that more than half of pregnant women with a history of bariatric surgery were found to be deficient in vitamin A levels.[5]

The choice is of Vitamin A formulation is guided by pregnancy concerns of maternal/fetal risk and is not specific to history of bariatric surgery. The form of vitamin A that is recommended in pregnant patients is beta-carotene, a precursor of vitamin A. Multiple references state that the beta-carotene form of vitamin A is preferred over the retinol form of vitamin A.1,4,5,7,8 The retinol isoforms may increase the risk of fetal malformation.1 In a review article, it even noted to avoid food products such as liver and liver products such as pate and cod liver oil to avoid consumption of retinol-based vitamin A.1 Vitamin A sources that are potent teratogens are isotretinoin and etretinate and should be avoided.[8]

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Two review articles, an UpToDate article, and the 2009 American College of Obstetricians and Gynecologists Guideline on Management of Pregnancy and Bariatric Surgery all state the daily limit of **supplemental** vitamin A is 5000 IU/day for pregnant patients with history of bariatric surgery.[5,6,7,9] There was no data defining a limit on total daily vitamin A from both dietary and supplemental sources. The recommended daily allowance (RDA) of vitamin A supplementation for pregnant patient without a history of bariatric surgery set by the FDA is 8000 IU/day.[8] One would expect that pregnant patients with a history of bariatric surgery would have a greater daily recommendation due to the potential of nutrient wasting, but the 8000 IU/day RDA set by FDA is something to consider.

As of January 2020 (for larger companies) and January 2021 (for smaller companies), the FDA is changing the representation units of vitamin A on labels. Instead of international units, vitamin A will start to be to have the units of micrograms of retinol equivalents (RAE). The purpose of changing to RAE is to account for the different bioactivities of retinol and provitamin A carotenoids (beta carotene).[10] The RDA for vitamin A in RAE for both pregnant and pregnant with a history of bariatric surgery is 770 mcg RAE.[11] International units of vitamin A conversions to RAE is depend on the form of vitamin and source (dietary or supplement) and conversion rates may be found in the vitamin A fact sheet referenced.[10] **As an FYI, 5000 IU of beta-carotene from a dietary supplement = 750 mcg RAE.** [10]

Dietary sources of vitamin A from animal sources contain primarily preformed vitamin A (retinol) whereas plant-based foods have provitamin A (beta-carotene). The foods with highest amount of mcg RAE per serving are (1) sweet potato, (2) beef liver, (3) spinach, and (4) carrots [see vitamin A fact sheet for full list]. Unlike preformed vitamin A, large supplemental doses of beta-carotene (20-30 mg/day) or high levels of beta-carotene from dietary foods are not associated teratogenic or reproductive toxicity. The most significant effect of excess beta-carotene is change in color of skin to a yellow-orange color which is reversed upon discontinuing beta-carotene ingestion.[10]

With the patient already at 4000 IU, the literature does not recommend using supplemental vitamin A greater than 5000 IU of vitamin A. However, if the patient is currently receiving her daily 4000 IU from a prenatal vitamin, checking that the source of vitamin A is from beta-carotene may be appropriate. Using the conversion rate from the vitamin A fact sheet may be used to estimate the RAE if there are multiple different sources of vitamin A.[10]

According to an UpToDate article, identified deficiencies should be corrected and monitored monthly [note: this is general recommendation for all deficiencies in pregnancy, not just vitamin A]. With the patient being 28 weeks along, monthly levels of vitamin A would likely lead to only two levels from now until childbirth. More frequent lab draw may be appropriate due to the shorter duration of remaining pregnancy, but at the very least, monthly levels may be drawn to assess deficiency.[9]

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