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Changes to Formulary

Additions

- Atorvastatin 10 mg, 20 mg, 40 mg, 80 mg tablets (Lipitor®)**
 - HMG Co-A Reductase Inhibitor (statin) antihyperlipidemic agent
 - Effective, Jan 23, 2012, all statins other than pravastatin will be interchanged to an equivalent dose of atorvastatin (see page 3)
- Pravastatin 20 mg, 40 mg tablets (Pravachol®)**
 - HMG Co-A Reductase Inhibitor (statin) antihyperlipidemic agent
 - This statin will not be subject to the interchange to atorvastatin (see page 3)
 - Note that pravastatin is not metabolized by CYP-3A4 enzyme system so has less drug interactions compared to atorvastatin

Deletions

- Streptokinase injection**
 - Discontinued by manufacturer
 - Alternatives: alteplase (r-TPA), tenecteplase

2. Protein C, Activated (Drotrecogin, Xigris®)

- Discontinued by manufacturer
- This drug was approved for treating ICU patients at high risk of death due to serious complications from sepsis or septic shock
- Results from a large international clinical trial (Prowess-Shock study) failed to show mortality benefit at 28 days

3. Simvastatin tablets all strengths (Zocor®)

- Alternative: Atorvastatin - see Therapeutic Interchange page 3.

4. Beclomethasone metered dose inhaler

- Alternative: fluticasone inhaler (Flovent®)
- All orders for beclomethasone 100 mcg inhaler (QVAR®) will be interchanged to fluticasone 125 mcg inhaler (see page 3)

Updated Policies

1. LEGIBLE PHYSICIAN ORDERS FOR FAX TRANSMISSION

The majority of physician order sheets received in the Pharmacy are transmitted through a fax machine. The quality of the copy received is dependent on the writing instrument used. Calligraphy, felt and gel pens do not copy well; in fact **gel pen orders do not transmit at all**. Only use black or blue ball point pens when writing in the Prescriber Order sheets.

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2. PHARMACIST AUTHORITY EXPANSION

Expanded pharmacist authorities include:

- Authority to discontinue complementary medicines and non-formulary vitamins that are deemed non-essential to hospital stay
- Authority to interchange formulations:
 - ⇒ Solid to liquid or rectal, or vice versa
 - ⇒ Nebulized formulation to inhalers (i.e. MDI, diskus) (clinical pharmacists only)
 - ⇒ IV to PO antiemetic therapy

Refer to VA formulary policy 4.7 for a complete list of Pharmacist Authorities and details.

3. VTE RISK ASSESSMENT AND PROPHYLAXIS PRE-PRINTED ORDER REVISION

The Venous Thromboembolism (VTE) Risk Assessment and Prophylaxis Orders for Medicine (PPO #761) and Surgery (PPO#755) have been revised to reflect changes approved by the Regional Pharmacy and Therapeutics Committee. The major changes include:

- eGFR and weight-based dosing have been removed from page 1
- Page 1 only includes the usual doses for anticoagulant prophylaxis:
 - ⇒ dalteparin 5000 units SUBCUT daily **OR**
 - ⇒ heparin 5000 units SUBCUT Q12H (for patients with severe renal impairment)
- Weight-based dosing can now be found on the back of page 1 in the Footnotes and Precautions section (see Table 1 below).

Table 1. Suggested dosing for dalteparin and heparin in patients with extremes of weight and /or renal impairment

| Weight Range | Dalteparin (eGFR 10 mL/min or above) | Heparin (eGFR less than 10 mL/min) |
|-----------------------------------|--------------------------------------|------------------------------------|
| 40 kg or less | 2500 units SUBCUT daily | 2500 units SUBCUT Q12H |
| 41 kg to BMI 40 kg/m ² | 5000 units SUBCUT daily | 5000 units SUBCUT Q12H |
| BMI over 40 kg/m ² | 5000 units SUBCUT Q12H | 5000 units SUBCUT Q8H |

All orders where the VTE guidelines have been embedded into an existing PPO have also been

updated. All old versions should be discarded and replaced with the new versions. To ensure the most up-to-date version is being used and to avoid waste, please refrain from ordering or printing large quantities of these order sets.

4. B.C.SMOKING CESSATION PROGRAM

As of Sept 27, 2011, in each calendar year, residents of BC are eligible to receive:

- Coverage for ONE of the designated prescription smoking cessation drugs for a single continuous course of treatment lasting up to 12 consecutive weeks; **OR**
- 100% coverage for ONE of the designated nicotine replacement therapies (NRT) for a single continuous course of treatment lasting up to 12 consecutive weeks.
- Products covered in this program include:
 - ⇒ Bupropion (Zyban[®])
 - ⇒ Varenicline (Champix[®])
 - ⇒ NRT chewing gum (Thrive[®])
 - ⇒ NRT patches (Habitrol[®])

5. POLYETHYLENE GLYCOL (PEG) PREPARATIONS

There are two different polyethylene glycol (PEG) powder preparations for use either as a laxative (without electrolytes) or as a bowel prep (with electrolytes).

- i) Laxative:** PEG 17 g (Lax-A-Day[®], PEG 3350)
 - ⇒ 17 g is dissolved in 1 cup of liquid
 - ⇒ This product does NOT contain electrolytes
- ii) Bowel Prep:** PEG 70 g (Peglyte[®], PEG 3350 with electrolytes, Golytely[®], PEG Bowel Prep)
 - ⇒ 70 g is dissolved in 1 L of water
 - ⇒ Each 70 g contains the following electrolytes: sodium sulphate 5.74 g, sodium bicarbonate 1.69 g, sodium chloride 1.46 g, potassium chloride 0.76 g (= 10 mmol)

6. THERAPEUTIC INTERCHANGE: BIMATOPROST TO LATANOPROST EYE DROPS

To align with the BCHA Provincial Formulary, all orders for bimatoprost 0.01% and 0.03% eye drops (Lumigan RC[®], Lumigan[®]) will be therapeutically interchanged to latanoprost 0.005% (Xalatan[®]) at the same number of drops and frequency. There is already an interchange of travaprost 0.004% (Travatan[®], Travatan Z[®]) to latanoprost 0.005% in place at VA.

7. THERAPEUTIC INTERCHANGE: BECLOMETHASONE INHALER (QVAR) TO FLUTICASONE

The only beclomethasone metered dose inhaler available in Canada is QVAR[®]; both Beclovent[®] and Becloforte[®] were discontinued a few years ago. To align with the BCHA Provincial Formulary, all orders for beclomethasone 100 mcg (QVAR[®]) will be therapeutically interchanged to fluticasone 125 mcg (Flovent[®]) at the same number of puffs and interval as originally prescribed.

8. THERAPEUTIC INTERCHANGE: HMG Co-A REDUCTASE INHIBITORS (STATINS)

To align with the BCHA Provincial Formulary, effective January 23, 2012, all statins other than pravastatin will be interchanged to atorvastatin. Since the lowest available strength of atorvastatin is 10 mg and doses less than 10 mg have not been studied, doses of other statins that convert to less than atorvastatin 10 mg will be converted to 10 mg (see Table 2).

Of note, pravastatin, which has also been added to formulary but is not part of this interchange, does not undergo metabolism by the CYP-3A4 enzyme system. Therefore, unlike atorvastatin, pravastatin has no drug interactions between CYP-3A4 inhibitors (e.g. clarithromycin, erythromycin, itraconazole, ketoconazole and voriconazole).

Table 2. Statin Interchange to Atorvastatin

| Drug Ordered (Total Daily Dose) | | | | Drug Dispensed |
|------------------------------------|------------|--------------|-------------|----------------|
| Fluvastatin | Lovastatin | Rosuvastatin | Simvastatin | Atorvastatin |
| 20 mg | 10 mg | - | 5 mg | 10 mg PO QHS |
| 40 mg | 20 mg | 2.5 mg | 10 mg | 10 mg PO QHS |
| 80 mg | 40 mg | 5 mg | 20 mg | 10 mg PO QHS |
| - | 80 mg | 10 mg | 40 mg | 20 mg PO QHS |
| - | - | 20 mg | 80 mg | 40 mg PO QHS |
| - | - | 40 mg | - | 80 mg PO QHS |

***Clostridium difficile* Infection Quality Assurance Initiative: A collaborative effort between Pharmacy and Infection Control**

Tim T.Y. Lau, PharmD and Elizabeth Bryce, MD

Clostridium difficile Infection (CDI) is the most common cause of nosocomial diarrhea with symptoms ranging from mild or moderate diarrhea to severe complications, such as pseudomembranous colitis, toxic megacolon, sepsis, and mortality. Since November 2010, a CDI management policy has been adopted at Vancouver Coastal Health to ensure that all patients with CDI are treated appropriately based on the severity of disease.

In March 2011, Pharmacy and Infection Control initiated a collaborative effort to optimize the management of patients with CDI. All patients with CDI would be followed prospectively by ward-based clinical pharmacists to ensure they were receiving appropriate treatment, based on the CDI management policy. If patients were not on appropriate therapy, the clinical pharmacists would intervene and communicate with the medical team to have the treatments changed. Deviations from the recommended regimens required documentation in the health care record. In order to educate and remind clinicians of the policy, Infection Control, with the assistance of the Medical Microbiology laboratory, provided direct access to the CDI management policy on the hospital intranet through all positive PCR *C. difficile* toxin reports and the PCIS laboratory system. A CDI treatment pre-printed order entitled "Clostridium Difficile Infection Treatment Orders" (PPO #765) is also available.

Since implementation of the CDI Quality Assurance Initiative, there have been 73 cases of CDI over a 4-month period (March to July 2011). Appropriate CDI treatment has improved from a historic baseline of 9% to 69%. Most of the CDI cases were mild-to-moderate (69%), while severe disease occurred in 25% of cases. The majority of mild-to-moderate and severe cases were treated appropriately at 76% and 61%, respectively. Twenty-three patients were not on appropriate therapy and clinical pharmacists intervened in 16 cases (70%) through direct discussions with the medical team. Forty-three patients received concurrent systemic antibiotics when diagnosed with CDI. Of these, 13 cases (30%) had their antibiotics discontinued. The majority of patients also had their motility agents (e.g. domperidone,

metoclopramide), anti-peristaltics (e.g. loperamide), H-2 receptor antagonists (e.g. ranitidine), and proton pump inhibitors (e.g. pantoprazole) discontinued when not clinically indicated.

Summary

- CDI treatment improved from 9% to 69%
- Pharmacist intervention through direct medical team discussions appears effective
- Continued education of health care staff regarding the CDI management policy is required
- Collaborative effort between Pharmacy and Infection Control is an effective strategy in optimizing CDI management.

The CDI management policy can be accessed on the VCH intranet

- in the Clinical section under "Infection Control"
- or in PCIS by clicking on "Start Here" or "Show VTB" (at the top of the page), then click on "Policy Links", then "Infection Control/ Infectious Diseases".
- Once in "Infection Control", click on "*C difficile* Management Protocol", then click on "CDI Management Guideline" in the middle of the page.