NATIONAL PBM BULLETIN

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**DEPARTMENT OF VETERANS AFFAIRS VETERANS HEALTH ADMINISTRATION (VHA)
PHARMACY BENEFITS MANAGEMENT SERVICES (PBM), MEDICAL ADVISORY PANEL (MAP),
AND CENTER FOR MEDICATION SAFETY (VA MEDSAFE)**

RISK OF SPINAL COLUMN BLEEDING AND PARALYSIS IN PATIENTS ON LOW MOLECULAR WEIGHT HEPARINS

I. ISSUE

Cases of epidural or spinal hematomas leading to long-term or permanent paralysis continue to occur with the use of enoxaparin (Lovenox or its generics) and other low molecular weight heparins in combination with spinal/epidural anesthesia and/ or spinal puncture procedures.

II. BACKGROUND

All anticoagulants may cause spinal bleeding when used in conjunction with epidural/spinal anesthesia or spinal puncture. Enoxaparin carries a known risk for epidural or spinal hematomas when used with spinal procedures as highlighted in the *Boxed Warning* and the *Warnings and Precautions* sections of current brand and generic product labeling. However, due to continued reports of these serious adverse events, FDA requires that manufacturers update the *Warnings and Precautions* section of the brand and generic enoxaparin product labels, as well as product information for other low molecular weight heparin products, with timing recommendations for anticoagulant dosing in the setting of catheter placement or removal in spinal anesthesia in order to reduce the risk.

III. DISCUSSION

FDA received reports from the manufacturer of 170 cases of spinal or epidural hematoma associated with Lovenox thromboprophylaxis and neuraxial anesthesia (spinal or epidural) or spinal puncture occurring in the time frame of July 20, 1992 (prior to FDA-approval) through January 31, 2013. Upon review, 100 cases of spinal or epidural hematoma were confirmed by computed tomography [CT]; magnetic resonance imaging [MRI]; clinical symptoms/signs or surgical findings; or documentation of spinal or epidural anesthesia, spinal puncture, or epidural anesthesia. Of these 100 validated cases, influential risk factors occurring with greater frequency include female gender [N=72]; elderly age (> 65 years old) [N=70]; epidural technique [N=54]; twice daily administration (versus once daily administration) [N=48]; increased risk of hemorrhage [N=47]; concomitant blood-thinning medications (antiplatelet, anticoagulant, NSAIDs, etc.) [N=43]; indwelling epidural catheter during Lovenox administration [N=36]; traumatic needle/catheter placement [N=26]; and abnormalities of spinal cord or vertebral column [N=20].

IV. PROVIDER RECOMMENDATIONS

As risk of causing epidural or spinal hematomas is inherent in all anticoagulants when used together with epidural/spinal anesthesia or spinal puncture, FDA recommends:

- *Health care professionals and institutions involved in performing spinal/epidural anesthesia or spinal punctures should determine, as part of a pre-procedure checklist, whether a patient is receiving anticoagulants and identify the appropriate timing of enoxaparin or other anticoagulant dosing in relation to catheter placement/removal.*
- *To reduce the potential risk of bleeding associated with the concurrent use of enoxaparin and epidural or spinal anesthesia/analgesia, the placement and removal of the catheter is best performed when the anticoagulant effect of enoxaparin is low, considering the dose of anticoagulant and its elimination half-life. Although no prospective trials of this timing have been performed to date, additional guidance is being provided now for considerations that may reduce the risk.*
- *Placement or removal of a catheter should usually be delayed for 12 hours after administration of deep vein thrombosis (DVT) prophylactic doses of enoxaparin, whereas patients receiving higher doses of enoxaparin (1 mg/kg twice daily or 1.5 mg/kg once daily) will require longer delays (24 hours). The subsequent enoxaparin dose should usually be given no sooner than 4 hours*

after catheter removal.

- *In all cases, a benefit-risk assessment should consider both the risk for thrombosis and the risk for bleeding in the context of the procedure and patient risk factors.*
- *If anticoagulation is administered in the setting of epidural/spinal anesthesia, monitor patients frequently to detect any signs and symptoms of neurological impairment, such as midline back pain, sensory and motor deficits such as numbness or weakness in lower limbs, and bowel and/or bladder dysfunction.*
- *Counsel patients to alert their health care professional immediately if they experience any of the above signs or symptoms.*
- *If signs or symptoms of spinal hematoma are suspected, urgent diagnosis and treatment including spinal cord decompression should be initiated.*

V. REFERENCES

1. FDA Drug Safety Communication: Updated recommendations to decrease risk of spinal column bleeding and paralysis in patients on low molecular weight heparins. http://www.fda.gov/Drugs/DrugSafety/ucm373595.htm . Accessed 11/06/2013.

ACTIONS

- ***Facility Director*** *(or physician designee): Forward this document to the Facility Chief of Staff (COS).*
- ***Facility COS and Chief Nurse Executives:*** *Forward this document to all appropriate providers who prescribe these medications (e.g.,* ***primary care providers, hospitalists, critical care clinicians, surgeons, anesthesiology, and anticoagulation staff, including contract providers, etc****.). In addition, forward to the Associate Chief of Staff (ACOS) for Research and Development (R&D). Forward to other VA employees as deemed appropriate.*
- ***ACOS for R&D:*** *Forward this document to Principal Investigators (PIs) who have authority to practice at the facility and to your respective Institutional Review Board (IRB).*