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Pharmacist's Letter
Hospital

Know the Latest Guidance for Preventing TBI Complications

Emphasis will change on **how to prevent traumatic brain injury (TBI) complications**...due to updated guidelines from the Am Coll of Surgeons.

TBI led to over 200,000 US hospitalizations in 2020 and over 60,000 deaths in 2021...often from falls, motor vehicle accidents, or firearms.

These patients can develop seizures...venous thromboembolism (VTE)...and other secondary issues that increase morbidity and mortality.

Review updated adult TBI guidance to prevent complications.

Advocate seizure prophylaxis for high-risk patients. These include cases with penetrating injuries...depressed skull fractures...Glasgow Coma Scale score below 10...and subdural or intracranial hemorrhages.

Generally recommend levetiracetam, since fosphenytoin has more downsides, such as interactions, side effects, lab monitoring, and long infusion times. And avoid valproic acid due to minimal benefits over fosphenytoin and possibly higher mortality.

Be aware that levetiracetam prophylaxis dosing varies. Some experts use up to 1,000 mg IV or po bid...with or withOUT a loading dose.

Consider configuring levetiracetam orders to give as undiluted IV push for convenience...and to conserve IV fluids during shortages. Ensure doses drawn up at the bedside are used within 4 hours per USP <797>.

And add 7-day stop times to most prophylaxis orders...only certain cases need to continue it longer. For example, patients with seizures after 24 hours post-TBI will need longer therapy.

Recommend prompt VTE prevention. Advise mechanical prophylaxis (intermittent compression stockings, etc) ASAP at admission. Then weigh the risks and benefits of meds for prophylaxis.

In general, use low-molecular-weight heparin (LMWH) over unfractionated heparin. LMWH has the same risks for intracranial bleeding and prevents more VTE events in TBI.

Expect most nonsurgical patients to get a head CT around 24 hours post-injury...to see if bleeding is stable enough to start prophylaxis.

Coordinate holding prophylaxis peri-op...or if bleeding worsens on CT. Restart after patients are stable and 24 to 48 hours post-op.

Experts recommend continuing prophylaxis when simply placing or removing intracranial pressure (ICP) monitors...benefits outweigh the bleeding risk.

Be aware that the Am Coll of Surgeons generally suggests anti-Xa monitoring to guide LMWH dosing. But evidence is unclear whether it changes outcomes...especially for prophylaxis.

Key References:

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