Blood Thinner Follows Bedridden? – Rule of Exercises

Chun Yang, MD, PhD

Extended bedridden periods can significantly increase the risk of blood clotting. Deep vein thrombosis (DVT) may occur in some cases, and break off thrombi may cause pulmonary embolism (PE), though incidence is relatively low. Extended bedridden periods can also increase the risk of pressure ulcer (bed sore) and other unfavorable conditions such as spasticity, contracture, etc. To prevent complications, to turn the patient every two hours is ordered during hospital stay. This order has been carried out for more than fifty days but did not work well for the patient, including after being transferred to a skilled nurse facility (SNF). Later, the patient is admitted to the medical ward due to bedsores worsening and worrying about traveling too much with an ambulance for medical care. In the new hospital setting, heparin is prescribed with muscle injections twice daily for prevention of blood clotting. Should the patient receive the heparin or simply continue to be turned every two hours? After transfer to SNF, a careful comparison of exercise and heparin has found out that exercise has much more advantage over heparin in this type of case. Well designed regular exercise generally increases a patient's strength, enhances patient's blood circulation, improves many other physical and physiological conditions. Exercise, therefore, decreases the risk of blood clotting. Though in recent years the usage of heparin in patients with high risk of blood clotting gains attention [1], in particular for patients at risk e.g. bedridden plus cancer, obesity, smoking, etc. [2], whether heparin should be used in some particular cases still needs to be carefully considered. Heparin is a small molecule with strong negative charges which can modify many components within blood, its interactions with many drugs have been elucidated, and quite a few are contradicted. However, new medicines remain to be observed for their interactions with heparin. Side effects of heparin should be carefully watched as well. Heparin induced thrombocytopenia (HIT) may occur in some cases. Heparin may increase bleed tendency, though heparin caused bleeding can be neutralized medically. Testing platelets, PT, PPT / aPPT, and D-dimer may help to monitor the status of blood coagulation. If a carefully designed exercise can be offered, heparin is better to be avoided in many cases. Patient's both active and or passive exercises entertained at a defined level should be prescribed. (During the period November 2017 – February 2019 in SNF, the patient did well without heparin treatment.)

1. https://www.wsj.com/articles/blood-clot-prevention-is-higher-priority-at-hospitals1438626045
2. http://www.heart.org/HEARTORG/Conditions/More/Understand-Your-Risk-forExcessive Blood-Clotting_UCM_448771_Article.jsp#

Injury of Spinal Cord - Rule of Sheet

Chun Yang, MD, PhD

Spinal cord injury with vertebral fracture oftentimes may not need a surgery or even a brace for treatment. It can be, however, difficult to be handled by regular care providers. Here we report how the problem develops and how we have discovered the Rule of Sheet. A patient suffered from a fall. Three thoracic vertebrates (T8 -10) were fractured. Almost all caregivers tried to simply grasp her hand or and hold her body side to lift up or turn her; The patient started to complain of pain each time. An order of giving oxycodone 30 minutes before turning or repositioning her did not stop her pain as well. This led her care teams to avoid touching her and leave her alone for a prolonged period. Thus, her fixed sitting position as a bedridden patient added to develop bedsores (from stage 0 to stage 3 within 30 days). And repeatedly given stronger and higher doses of pain medicine even led to side effects such as change of her mental status. Repeatedly requests of evaluation and treatment of spinal cord injury were declined by care teams (responding- simply nothing else could be done). Multiple folds of deterioration happened - secondary or repeated injury, delayed healing of injury, spasticity / contracture, losing muscle and bone masses, progression of pressure ulcers (even with new ones), decreasing general strengthen, increasing side effects of pain medicine, and increasing medicine usages (blood thinners, stool softeners, and pain medicines). Such an unhealthy cycle was very worrisome, as bedsores alone can infect and lead to death. Serious attention and searching for solutions led to the discovery of a simple rule of sheet (Oct 5, 2017). That is marking the injured spine area, placing underneath with a sheet (a draw sheet), and always holding the sheet to move, lift up, or turn the patient. Notice of spine injury cautions. Never try to grasp a patient's hand or simply hold the patient's body to move the patient. After a few weeks, the patient was able to gently start moving herself around her spine region, which demonstrated that the injured spine was healing.

Tachycardia in a Senior Patient - Rule of Checkup

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Infection is a common, sometimes potentially serious complication of cancer and its treatment. Sometimes infection is not typically presented with infectious symptoms and physical signs, which can be difficult to identify and treat timely. Here we report a Foley catheter associated urinary tract infection (UTI) presented with a single sign of tachycardia. For a few days, I felt the pulse of a patient (82 y o female with advanced stage lung cancer, NSCLC, Braf V600E) faster than usual. I asked the discharging nurse, but she said her pulse was normal when she took her vital sign earlier. After transferring to her skilled nursing facility for an overnight, next early morning, I felt the same – tachycardia. Several healthcare providers told me that it was fine for her age, she had a history of tachycardia, and she felt anxiety in a new residency. However, I got to know the patient better. I said I was sure this was unusual and hoped the patient would be sent to hospital for examination. At the ER, an experienced nurse went right away to take a urine sample and sent it for a lab test. The result came back positive for bacteriuria (numerous bacteria in urine sample) – E. coli and Klebsiella were cultured as positive, and drug sensitivity test was further done. An UTI was diagnosed and IV ceftriaxone was initiated before the drug sensitivity test result. Patient was admitted. Two days later, the patient's pulse was back to normal range. Patient did not have fever, chills, pain, and no other UTI symptoms due to Foley catheterization. One should pay attention to the fact that urine retention itself may cause increased heart rate. But the degree of increasing heart rate is often less severe than infection. This patient is with Foley catheter and urine retention should be always ruled out first. Selection of correct antibiotics is also of importance. Not only the antibiotics should be sensitivity test based and as narrower as possible (to reduce possibility of resistance), but also it should not contradict the patient's other conditions such as dementia or memory impairment and other treatment e.g. targeted therapy.

Cancer Pain Medication - Rule of Alternation

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It is estimated by the World Health Organization (WHO) that about 25% of all cancer patients die with unrelieved pain. Therefore, developing new pain medication strategies is much needed. Here we report the discovery of the Rule of Alternation. Closely working with a patient of advanced non-small cell lung cancer (NSCLC, Braf v600e) with pain, we have demonstrated that when the first pain medicine (e.g., acetaminophen) becomes ineffective, we start with a similar or a slightly stronger medicine (e.g., ibuprofen). When the second medicine becomes ineffective again, we do not escalate to an even stronger medicine (e.g., tramadol). Rather, we switch back to the first medicine (e.g., acetaminophen), and it starts working again. After a few weeks, the first one became ineffective again. And we switch back to the second one (e.g., ibuprofen) again. The patient also uses a patch locally (e.g. lidocaine). For the two medicines cycle, we are able to keep the patient free of pain or with very minimally tolerable pain. The rationale behind the alternation is that the pain medicine is not due to the progression of cancer that leads to its ineffectiveness; rather it is more likely that the body has generated tolerance. For example, possibly, the body generates more drug metabolic enzymes, which increases its turnover of the medicine. Therefore, after switching to a different medicine, the body gradually recovers from the tolerance. For example, the body's enzyme level returns to normal. After a few weeks, the previously tolerated medicine becomes effective again. This novel method helps to prevent cancer patients from out of pain medicines at a reasonable period. Therefore, the patient's period of survival is improving.

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Laxatives Follow Opioids? Rule of Veggies

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Constipation is among the most common side effects of opioids. When opioids are prescribed to relieve pain, laxatives are often given to the patient for prevention of opioid induced constipation (OIC) at the same time. Here we report how to prevent constipation through simply increasing vegetable intake when a patient is using opioids. Patient was admitted to the ward due to uncontrollable cancer pain. Oxycodone was given every four hours and laxatives were also followed routinely. The patient asked to withhold laxatives and watched her bowel movement first. Through the course of 24 hours with three nurse shifts, one bowel movement was reported and the patient felt relieved - she did not need laxatives. Next morning, she added fruits to her breakfast and vegetable salad to her lunch and dinner. For a few days, she had her regular bowel movement while she was taking oxycodone. This case demonstrates that although laxatives may not be routinely following medications such as opioids that may cause constipation, the initial step remains to be an observation of the patient's bowel movement. At the same time, increasing fruits and vegetables in meals and or as snacks would also help to maintain the normal function of the gastrointestinal system and increase bowel movement. Staying well hydrated and keeping physical activity are also added to help. Therefore, side effects of constipation of opioids can be reduced to none.