Pediatrics Process Paper

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Description of Child/Family

Q.F. is a 17-year-old male from John's town Pennsylvania that was involved in a dirt bike accident in Carrollton, Ohio. Pt suffered a fracture to his T7 vertebra along with abrasions and scrapes throughout his body. Q.F. was staying with his aunt while in Ohio for the dirt bike competition and has been racing for 4 years. The pt's dad is back in Pennsylvania working, the pt has no connect with his mother, and per the dad's wishes nursing is not to contact her at all. Pt lives with a stepmother and stepsister in Pennsylvania with a half sister that he does not live with and a mother that lives in Ohio. The aunt was a little pushy and wanted to leave as soon as they heard that the pt was going to be released along with other issues such as asking if the pt could take a shower after the RN covering told us that he was not allowed since he had the hard cervical collar on. The pt did have insurance but is through his dad back in Pennsylvania and the family was concerned about the P.T. the pt would receive back home and if it would be covered.

Developmental Assessment

Q.F. is in the formal operation of Piaget's theory and is able to think abstractly and see the consequences of his action before he does them and could see the possible outcomes. I believe he knew that dirt bike racing is and knew the risks and could see he could be hurt and made a decision to race and get involved in dirt bike racing. The P.T. was socially appropriate for his age of a teenager. With some talking back and talking smart, back to the aunt a few times. His language use was what is expected for the age group with the slang words and some cussing. (Ball, Ruth, & Kay, 2010, pp. 132-133) Q.F. motor skills were affected on the left side due to the accident and were weak with some N/T present. The unaffected side was strong, with fine and gross movement normal on right side. The pt on the weight scale is in the 83% percentile category with a BMI of 25.1 for weight of 84k, and 83% for height of 6.0`. The pt is at a healthy weight

and near the top of the charts in weight and height out of 100 kids. Birth date is July 14, 1993. ("Height, weight")

Nutrition Assessment

Pt is a 17-year-old male with a moderate activity life style that has a calorie requirement of around 3600-3700 calorie intake. I based the activity level on his activity of racing dirt bikes on the weekends. When the pt was in the hospital, he was eating the entire try with no trouble eating what was given or ordered for him. The pt has not tried any type if diets but does workout and does eat out a few times a week.

Pathophysiology

Majority of spinal fractures occur males between the age of 16 and 30 years of age, which this pt fits into that category and results to injury in vertebra. Spinal injuries are less common in pediatrics due to the flexibility of the spine. The injury is a result of a force applied to the spine which then compresses, pulls or tears tissue of vertebra and spinal cord. A thoracic compression fracture is the most common type of spinal injury for pediatrics pts.(Vialle, Vialle, 2005), (Black, & Hawks, 2009) with in hours the injury inflammation and edema is present and can cause loss of sensations, numbness and tingling, and weakness. Q.F. had numbness and tingling in his left extremities along with weakness. The existent of the real injury is sometimes hidden by the edema and inflammation until that is under control will the doctors and care providers know the real damage that was done and not just temporary damage. Also in some cases injury to the cord leads to rapid increase in extracellular potassium and influx of calcium into the cell. Q.F was not one of these cases and all of his lab came back WNL. (Vialle, Vialle, 2005), (Black, & Hawks, 2009)

Specifically Q.F was a spinal compression fracture and along with the above events that take place there is additional symptoms that take place. This type of damage

is often cause by a fall or jump in which person lands on the head at some point in the fall or accident. This results in compression and fractures to the vertebra and compresses the cord. Lumbar and lower thoracic are most common for this injury which Q.F injury was T7. (Black, & Hawks, 2009)

Treatment

Assessment of diagnosis is made by observation and neurological exam along with radiology reports and tests. Radiology test could include CT, MRI, fluoroscopy, myelographyand x rays may be performed. The pt would also in most cases need some type of rehab to help get strength back from injury. Neuro checks Q4 hours were performed along rest of assessments. The pt did receive an MRI,CT and lab work up on admission to E.R. results are in later section. (Black, & Hawks, 2009),. (Vialle, Vialle, 2005), ("Thoracic spine compression,")

Medications

Colace

Mechanism of action is facilitates mixture of stool fat and water, emollient laxative for stool softening. Pt is on this so he can have a bowel movement without straining and to help get bowels moving again after the injury. Safe dose for 12 years and above is 50-300mg/day. Does ordered was 100mg bid dose was a safe dose. ("Epocrates,")

Naprosyn

Mechanism (NSAID) of action inhibits the cyclooxygenase, reducing prostaglandin and thromboboxane synthesis. It is a nonsteroidal anti-inflammatory medication. Dose ordered was 500mg bid safe dose for this drug of greater than 2 years of age is 10-20mg/kg day route is P.O. The pt weighs 84 kilograms and equals 840mg per

day with the 10mg per kg. The high end of safe dosing is 20mg per kg is 1680mg per day. So the pt is receiving a safe dose. ("Epocrates,")

Percocet

Is a opioid combo drug used to control pain. Safe dose is 0.05-0.15mg/kg of oxycodone up to 1gram per day and 75mg/kg/day up to 4000mg per day of acetaminophen. Dose ordered was 5 oxycodene/325 per pill. Safe does low is 4.2 of oxycodene/up to 4000mg of acetaminophen per day. Safe dose high is 12.6 oxycodene/ and up to 4000mg per day of acetaminophen. The pills come in different strengths so depends on what ordered for how much oxy and acetaminophen ordered. ("Epocrates,")

Flexeril

Flexeril relieves skeletal muscle spasms of local origin without affecting muscle function. The dose ordered for the pt was 10mg q8 hours. The safe dosage is 5-10mg po tid and so this is a safe dose for the pt. ("Epocrates,")

Phenergan

Phenergan antagonizes central and peripheral H1 receptors and thus preventing nausea and vomiting. The dose ordered for this pt was 12.5mg q4 hours iv. Safe dose low is 0.25/kg 84 =21mg and the high side is 1mg/k =84mg BUT the max dose ever given is 25mg. This is using the peds scale for phenergan, if the adult dose is being used the dosing makes more since and is 12.5mg - 25mg max. I think this scale is what the doctor used and both calculations are in the safe dosage categories. ("Epocrates,")

Dilaudid

Dilaudid is opioid class drug that binds to various receptors and causes analgesia and sedation. The dose ordered for the pt was 2mg q4 prn needed for pain. The safe dose for greater than 6 months and more than 50kg is 1-2mg. This is a safe dose for this pt that was given. ("Epocrates,")

Physical Assessment

This pt suffered a compression spinal fracture to the T7 vertebra. The parts of the assessment that would be particularly important are neruo vascular, pain level, and skin integrity. The neruo vascular assessment would be important to check circulation of the extremities and assess for any numbness and tingling with also check for any weakness in grasps and pedal pushes and pulls. Pain level would be and issue because of the pain of the fracture of the vertebra and would need to keep the under control to keep the pt comfortable. Skin would be a issue in this case due to the two braces the pt is wearing. Q.F. is wearing a hard cervical collar and a Juedid brace around his chest, back and pelvic area. This could cause some irritation spots on the skin so would want to monitor for skin breakdown.

Q.F. had capillary refill time of less than 3 seconds with numbness and tingling in the left extremities with hand grasp and pedal pushes and pulls weak on the left side. Pain was and issue for this pt he would c/o pain of a 8-9 that would just take the edge off to a 3-4 on the pain scale. The pts skin integrity was without any breakdown there was no abrasions or red areas that were rubbing the skin of the pt. (Vialle, Vialle, 2005), (Black, & Hawks, 2009), (Ball, Ruth, & Kay, 2010)

Lab Values/Diagnostic Test

Q.F. had a MRI of the cervical spine, which came back as normal, and a MRI of the thoracic lumbar region with abnormal results. In the impression, left arm left leg weakness there is a single abnormality corresponding to the T7 vertebral body fracture described on prior CT and no marrow edema to acute process with no hematoma. CT results of chest, abdomen and pelvis, with post processing coronal reconstructed images and intravenous contrast. Impression was acute mildly compression fracture involuntary T7 vertebral body. CT of brain was no acute intracranial hemorrhage or depressed

calvarial skull fractures. The lab work came back all in normal limits with the exception of the Hgb the pt's level was 13.2. The Hgb is 13.2 which is high for the child the scale is 11- 12.5 but is in a normal limit for an adult level and with the pt being 17 years and 9 months I really didn't see this lab as a problem since the pt is transitioning into adulthood soon anyways.

Normal Growth/Normal Development

S.Q. growth could be stunned by this injury with the chance of growing into early 20's. Since he is already 6'0 I am not sure how much more the pt would actually grow anyways he is already near the top of the grow charts for his age already. Developmentally there is no reason why this would be affected his cognitive ability is what it should be for his age with no deficits. (Vialle, Vialle, 2005),

Nursing Diagnosis #1

Impaired physical mobility related to trauma to vertebra secondary to neuromuscular impairment.

Supporting data #1

Weakness of left side extremities

Numbness and tingling of left side extremities

Short and Long Term Goals #1

Short term goal, The pt will demonstrate an increase in function in affective side and work with P.T. to strengthen affective side during a 10 hour shift.

Long term goal, Pt will adhere to P.T. treatment and regain majority of function back in affected side by 1 month.

Interventions #1

1. Apply SCD'S to pt while in bed

Rational: The SCD'S limit the amount of blood pooling in lower extremities and reduce

the chance of thrombus formation and pulmonary emboli.

2. Consult with P.T. about rehab plan and specific treatment and exercises for pt

Rational: The planning of a rehab program tailored to the pt will improve the pt's function and overall independence.

3. Administer medications as needed for pain and spasms, decrease inflammation

Rational: Pt has less pain and spasms and decrease in inflammation will keep the pt comfortable and more likely to adhere to rehab schedule and exercise treatments.

4. Continue to check motor function for numbness and tingling, and grasps for weakness.

Rational: Continuous assessments help determine plan of care for P.T and home and to keep track of progress made by pt.

EBP Citation #1

(Doenges, Moorhouse, & Murr, 2010)

Evaluation of goals #1

Short term: Pt did demonstrate and increase of function in affected side and was able to be discharge home with visiting P.T.

Long term: Pt will report and increase of independence and mobility after one month of visits from P.T.

Nursing Actions #1

1. Assisted pt in ambulating in the room and getting to the chair

2. Medicated pt for pain and muscle spasms as needed and requested by pt within orders of doctor.

3. Educated on the effects of medications used for pain and to decrease muscle spasms along of possible side effects of the medication.

4. Assessed pt's motor function for improvement in strength and decrease in numbness

and tingling along with gait and pain level after medication given.

Nursing Diagnosis #2

Risk for impaired skin/tissue integrity related to altered mobility secondary to hard cervical collar and Juedid brace.

Supporting Data #2

Jeudid and cervical collar against the skin rubbing causing friction may cause irrataion and skin breakdown.

Short and Long Term Goals

Short Term Goal: Pt will show no signs of skin breakdown during the 10-hour shift.

Long Term Goal: Pt will have no break down of skin within one month of wearing the braces.

Interventions

1. Inspect the skin every shift around braces for breakdown redness, abrasions, bruising, and pain.

Rational: skin is prone to breakdown due to change in pressure and rubbing of a brace so you need to check the skin more often to prevent breakdown.

2. Educate the pt on frequently changes in position while in bed or chair to prevent breakdown.

Rational: frequent changes in position prevent tissue from being damaged and becoming necrotic. Tissue can start to die after 2 hours so have pt change position every 2 hours.

3. Pad braces with a shirt or other barriers that will not interfere with braces function

Rational: Extra padding or barrier can help prevent breakdown and rubbing against skin thus decreases the change of an abrasion or open wound

4. Educate the pt on the use of lotions and creams skin barriers to prevent break down

Rational: if pt is educated on how to prevent skin breakdown less likely to occur moisturized skin is less likely to breakdown than dried out skin. Barrier creams can prevent or slow down breakdown if used correctly.

EBP Citation #2

(Doenges, Moorhouse, & Murr, 2010)

Evaluation of Goals #2

Short term goal: Pt did not have skin breakdown at the end of the 10 hour shift.

Long term goal: The pt will report no breakdown of skin in one month

Nursing Actions #2

1. Educated pt on barriers and creams to use to prevent skin breakdown
2. Educated pt risks of not changing position and being immobile
3. Gave pt all necessary products needed to wash up

4. Checked skin for any breakdown during shift

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