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Submission date: 16-Jun-2021 01:37AM (UTC-0500)
Submission ID: 1607348211
File name: Pediatric_Multi.edited.docx (23.83K)
Word count: 2092
Character count: 11406

Pediatric Multi-trauma

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16/06/2021

The analysis of trauma case

High mortality and mobility are reported each year following road accidents and falls in the elderly population. The resulting impact of road accidents is trauma on various major organs and muscles, damaging vital organs necessary for life. The critical organs likely to be injured following trauma are the brain, lungs, heart, intestines, and muscles, depending on the site of trauma. It's prudent to state that any organ in the body is likely to suffer the impact of trauma, hence reducing functionality and equally causing death. The critical organs to watch for following head trauma are the brain and blood supply to the brain as hemorrhage may ensure causing the death of the brain cells and excruciating pain. Trauma at the chest more often affects the organs surrounded by the rib cage, such as the lungs, esophagus tracheas, blood vessels, and heart.

In contrast, at the abdomen, the organs encompassed within the region, stomach, intestines are mostly damaged, the kidneys and gonads in particular. Most patients with trauma often experience pain at the site of trauma, internal and external bleeding, shock, breathing difficulty, inability to walk depending on the trauma. Imaging is critical to identifying the sites involved in trauma, locating the extent of damage, and stopping bleeding if suspected (Scaer, 2014).

Critical Thinking

Assumptions

A minor presenting with multiple fractures on different anatomical regions presumed unconscious for a while before gaining consciousness must have likely suffered a cerebral vascular attack following the impact. The child equally presented with vomiting on their transit to the hospital, which should prompt the medical personal to inquire more concerning the type of vomiting, whether projectile or non-projectile, in addition to the content as to

whether it was blood-stained or billus in nature such will be essential to determine whether the patient had increased intracranial pressure resulting to the passing out or subarachnoid hemorrhage. Additionally, the patient had a capillary refill of more than 2 seconds, facial and forehead swelling around the lacerated area, and bruised regions. The absence of bowel sounds, swelling and bruising on the left flank, and cold extremities were noted. The most affected region was left, presenting with deformity on the femur left leg and left cold feet and pale. Lastly, it was assumed the child's crying after administration of opioid analgesic was the need for her mother. It might be due to tolerance to the opioids or an indication that the pain is neurogenic. The motor functions and sensory were left unchecked, hoping they are intact and well-functioning, especially from undamaged areas.

Data inconsistencies

The patient is likely to have lost a lot of blood in the accident, causing the loss of consciousness and pale extremities. It is possible the patient is experiencing internal bleeding evident by the mass or swelling on the left flank that can be an indication of the damaged organs. Besides, the CT scan done on the head and spine was negative does not justify the cause of loss of consciousness. The impact may have impaired the normal firing of the brain, detected or early onset of seizures. There is a high possibility the patient equally heads ischemia, resulting in the occlusion of blood flow to the brain, resulting in loss of consciousness. The patient's blood pressure is equally low, suggesting a great indication of a shock either due to blood loss or septicemia. A normal scan done in addition to the CT scan would be an MRI and angiogram to detect any damage to the blood vessels and a full haemogram to detect the blood components.

Data clusters

Respiratory System

From the data assessment, the patient respiratory system had nothing significant to note. From the vitals, the patient had a respiratory rate of 26 bits per min. The normal respiratory rate from a child age five years should be between 18-30 bits per minute. Levels falling lower and higher than the values indicated signify a pathology in the identified regions. The oxygen saturation was equally good at 90%, indicating good transport and healthy lung conditions (Bhatia, & Sood, 2017). A low oxygen saturation would likely indicate a problem with the diffusion and transport of oxygen due to low hemoglobin concentration. Trauma to the lungs might lead to collapse and accumulation of fluids in the lungs, affecting the stated parameters.

Cardiovascular System

The cardiovascular system, through the blood supply, affects multiple organs. The blood supply is within vessels, pumped by the heart, and maintained at normal pressure. The pressure varies depending on age and sex. Young children tend to have reduced blood pressure as compared to their adult counterparts. The child had a pressure of 100/64, and 98/66 which is within the normal range of his age. High blood pressure is often referred to as hypertension and may result in cerebral accidents and end-organ damage if not well regulated within the normal range. Similarly, low blood pressure is often referred to as hypotension which more often occurs due to fluid loss in blood or water that might later progress to shock with symptoms of confusion, dizziness, and fatigue (Gross, & Ritz, 2008, July). The patient's lab works on the blood was not provided to determine the level of hemoglobin concentration and the total blood cells to rule out any abnormalities following previous infections unknown to the patient.

Gastrointestinal System

Based on the per abdomen assessment, the patient most likely suffered trauma in his abdomen. A normal abdomen is usually soft, flat, and non-tender. On inspection, there are ulceration noted and bruises. Such observations indicate that the internal organs near the region are likely to suffer an injury following the trauma. The abdomen is equally divided into nine quadrants to identify the underlying structures most likely to be damaged. On light and deep palpation and percussion, it was noted the abdomen was firm and swelling around the left flank, an indication of damage to either the spleen, left kidney, or any structure anatomically located in that area (Gossage et al. 2013). Lastly, auscultation revealed reduced bowel movement, an indication of abnormal functioning of the rectus. It is, however, unclear whether the abdomen is tender or not since the exact origin of the pain is unknown. Tenderness may be an indication of inflammation following tissue injury.

Genitourinary System

The patient doesn't express any frequency in urine production, urgency, nocturia, dysuria, and incontinence from the data obtained in the nurse assessment. The identified changes will indicate a form of diabetic insipidus if the patient could present with the symptoms listed or the onset of infection. However, the patient presented with hematuria which is the protein in the urine, a clear indication of the damage to the kidneys (Bright, 2014). There was equally a reduction in the output volume, which may indicate neurogenic or nephrogenic damage to the kidney affecting output.

Skin and Musculoskeletal

The patient presents with multiple dislocations of the muscles and tissues. The left-sided is most impacted by the trauma, which may be an indication of pain. There is no special form of skin rashes or skin pigmentation that could be a form of infection or reinfection with

a previous disease. Lab investigation on the creatinine level will increase the levels following muscle breakdown (Moutsopoulos, & Zampeli, 2021).

Psychosocial

Following multiple injuries encountered by the patient, he requires physiotherapy to help in post-recovery. The majority of the patient often died due to hospital-acquired infections. The patient needs his family members for quick recovery and promotion of the psychosocial attribute basing on the young age and care they require to deal with the daily challenges such as walking post-treatment.

Missing Data

There is missing data on the biodata of the patient, which is essential in treatment, such as the location of origin. Allergies are unknown, which might complicate the patient's state following treatment with the drugs the patient is allergic to and immunization schedule. There is no clear data on the patient's state, whether he was bleeding or not, the type of vomiting, and any know familial diseases such as bleeding problems within the family.

Conclusion

The patient is likely to have suffered abdominal trauma secondary to blood loss, resulting in the loss of consciousness evidence from data provided and test ordered. The chances that other organs are equally involved is high such as the kidney explains the presence of hematuria.

Most Significant Pathophysiology Process

Etiology

The cause of the symptoms is likely to be trauma at various sites that caused organ damage. Such often present with pain, increased blood pressure, and respiratory rate. Loss of blood could present with paleness and cold extremities.

Pathology

The condition is caused by damage to the internal organ. The kidney functions to filter blood and produce urine. It equally has a glomerulus that performs a filtration role damage to these minute cells results in impaired filtration that might permit proteins to pass through. Equally, damage to the receptor that is expected to be sensitive to antidiuretic hormone interferes with the amount of output (Aztatzi-Aguilar et al., 2016).

Clinical manifestation

The patient often presents with loss of consciousness following reduce blood supply to the brain, pain at the damaged site following inflammation and swelling, inability to walk the following muscle, and born fractures.

Diagnostic Test

The presence of muscle destruction is detected by creatinine level. The CT scan and X-rays are equally important to detect areas with abnormalities from the normal.

Planing of Care

Diagnosis	Outcome Statement	Possible available intervation with outcome
Taking blood pressure on both sides of the arm	Blood pressure low than 120/80	Monitoring cardiac function and other organs such as functioningof the brain
Checking the heartbeat	Range within 72 to 100 bits per minute	Detecting alteration in heart rate /rhythm

Speech assessment	Airway maintain patent and breaths assessed	Possible detection of changes in cognitive function

Clinical Practice Guidelines

The responsibility of the nurses include assessing vital signs such as temperature, pressure, and respiratory rate. A change in the vital is often associated with an infection or system damage that requires close monitoring and restoring when altered.

Medical Therapy Evaluation

Rationale in Medication

Medication	Group of Medication	Possible Use indicated for	The action of the Medication	Nursing Implications
Morphin sulfate 1.25mgIV.	analgesic	Pain	Increases pain threshold	Relieve patients from pain
O2 10-15 L/min	oxygen therapy following low oxygennsaturation	Reduced blood oxygen	Delivery of oxygen to patients	Oxygen supply via the nostrils
D51/2NS at 70 cc/hr	Injection	Electrolyte, water and calories	Nutrional forms	Delivery of calories and addition of electrolytes
Electrolytes, BUN, creatinine in am	Form of mineral	Replanshment of lost fluids	Effective in mainting normal metabolic process within the body	Assist in the contraction of muscles

Legal / Ethical Issues

The pediatric are usually hard to deal with following reduced cooperation and inability to establish an effective communication approach. The nurses expressed an ethical

approach through the relief of pain by administering the analgesic as part of doing good to the patient (Lim et al., 2012). Replacement of the lost fluids is equally a form of treating a patient's whole. The health care personnel must ensure good surrounding of the patient and recognize the role of the parent towards effecting treatment of the patients. The nurses are expected to practice with the current knowledge and work with other health workers to benefit the patient.

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