Brain Storms

Recognizing Sympathetic Storming in Your Patient Population: Implications for Patient and Family Education

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What is Brain Storming?

- Brain storming is a syndrome seen in patients with severe brain injuries
- It consists of episodic agitation, diaphoresis, hyperthermia, tachycardia, tachypnea and rigid deacrebrate posturing
- Symptoms may include all of only a few of the above

Objectives

- Learner will be able to verbalize the constellation of symptoms seen in paroxysmal autonomic dysreflexia
- Learner will be able to summarize frequently seen interventions
- Learner will be able to verbalize information needs of patient and family members

Abstract

Paroxysmal autonomic dysreflexia (PAD) is a potentially serious sequelae of severe brain injury. PAD, also known as “sympathetic storming”, consists of hypertension, tachycardia, hyperthermia, tachypnea, and rigid decerebrate posturing. An element may be present individually or as a constellation of symptoms. It is essential that the neuroscience nurse have the knowledge and skills to readily identify PAD and initiate appropriate intervention in a timely manner to minimize morbidity and mortality. Timely intervention by the well-educated RN will lead to decreased length of hospital stay, improved recovery outcomes, and decreased healthcare cost.

Further, because the symptoms of PAD are quite troubling to both the patient and the family members, family and patient education are needed to increase coping skills and lessen anxiety.

In the ICU

The Patient

- Frequently has multiple traumatic injuries which are overwhelming to patient and family
- Patient may be sedated, but is still subject to storming symptoms such as severe diaphoresis, hypertension, extensor posturing, etc.

Family in the ICU

- The family may be in shock or overwhelmed by the severity of injuries.
- Concern is for the patient's life.
- The family is very frightened by ICU setting.
- The family may not understand many of the medical terms, why things are happening as they are, and may be afraid to ask the doctors what is happening to the patient.
- The family may be passive in the face of such overwhelming tragedy.

Role of the RN in the ICU

- Provide optimal care of patient with life threatening medical issues
- Reassure patient and family as needed
- Provide education for patient and family as appropriate regarding brain storming, individualizing to patient's symptoms and situation
- Assist family in communication with other medical personnel so that questions and issues are addressed

On the Step Down or General Care Unit

The Patient

- The patient may be transferred to a step down unit from the ICU still with a trach and possible a PEG tube, still appearing acutely ill
- Frequently has multiple traumatic injuries
- May have diaphoresis, hypertension, extensor posturing, tachycardia, hyperthermia, or any combination of symptoms
- May or may not be responsive to family and staff

The Family

- Exhausted
- Overwhelmed
- Frequently hypervigilant by this time.
- Very distressed by brain storm symptoms, frequently demand immediate treatment which will stop all symptoms
- Beginning to realize that life for the patient has changed and that there will be grave long term consequences which will change the lives of all involved.

Role of the RN on the General Care Unit

- Assist patient and family in identifying patient strengths and improvements
- Identify symptoms of brain storming at earliest state possible to begin needed intervention
- Teach patient and family about causes of brain storming
- Reassure patient and family that there are treatments and symptoms can be alleviated if not eliminated

Brain Storming: AKA

- Paroxysmal Autonomic Dysreflexia
- Sympathetic Storming
- Midbrain Dysregulatory Syndrome
- Paroxysmal Autonomic Instability

What Causes Sympathetic Storming?

- Any type of severe brain injury
- Drug overdose
- Anoxic brain injury
- Traumatic brain injury such as from MVA

Pathophysiological Basis

is hypothalmic stimulation of the sympathetic nervous system and adrenal glands which cause stress response. Due to the brain injury, the body is unable to mediate the response.

Benefits of Early Intervention

- Decrease in mortality and mortality
- Shorter hospital stay
- Less stress for patient, family and loved ones
- Decreased medical cost
- Improved outcome for patient & family

When is Sympathetic Storming Seen?

- Often seen in first weeks after severe brain injury
- May continue for weeks or months, even more than a year
- Differential diagnoses include seizure, infection, drug or alcohol withdrawal, pain and agitation
- May not show up until patients has been moved to step down or general care unit, or even in rehab facility or skilled nursing facility.

Impact of the Nurse

- The bedside RN is the first to:
  - Identify the symptoms of Brain Storming
  - Intervene in the patient’s care
  - Teach the patient/family about brain storming and offer comfort, hope and understanding

- bedside teaching will be a continuous process as the patient and family assimilate information at their own speed

Traditional Medical Treatment Options

- Morphine sulfate – an analgesia, must observe for respiratory depression and bradycardia
- Dopamine antagonist, such as bromocriptine
- Beta-antihyperigic blockade, such as propranolol, labetalol

Family Interventions

- May be able to calm storming with calming massage, may help identify storm triggers, music, quiet conversation, or a soothing bath

Traditional Medical Treatment Options

- Alphago, multipurpose for respiratory depression and bradycardia
- Benzodiazepines, such as lorazepam, which are anxiolytic, and sedate and relax muscles

Family Interventions

- May be able to calm storming with calming massage, may help identify storm triggers, music, quiet conversation, or a soothing bath

Two cases of PAD are presented, one from the NCU and one from the Step Down Unit. Both cases illustrate the importance of early identification and intervention in the PAD, in order to help the patient achieve the maximum recovery.