Manitoba Health

Manitoba Health supports reporting and learning from patient safety events. The focus of a patient safety review is to closely look at the health care system that surrounds and interacts with those giving and receiving care. The goal is to identify risks to patient safety and recommend the most effective ways to minimize risk and improve the delivery of healthcare.

Patient Safety Learning Advisory

Delay in Proper Immobilization of Fracture contributing to Compartment Syndrome

Summary: A patient was brought in to the emergency department (E.D.) via emergency response services (ERS) with a fractured lower leg (tibia/fibula) from a tobogganing accident. The patient had a foam splint applied by ERS. A consultation was done with an orthopedic specialist, and it was advised to remove the foam splint and replace it with a back slab and transfer to the site where orthopedics surgery is performed. There was a 48 hour delay in transfer due to inclement weather and high call volume for ERS. The foam ERS splint remained in place during this time and the patient was admitted in the interim to the surgical unit pending transfer. Once the patient was transferred and received to the orthopedic surgeon for assessment, the patient was diagnosed with compartment syndrome.

Keywords: Compartment syndrome,

This review is based on a single event.

Findings of the Review:

There was communication breakdown following a delay in ERS transfer (48 hours) combined with improper immobilization of the lower limb fracture may have contributed to the development of compartment syndrome.

Compartment syndrome signs and symptoms went unrecognized as a possible complication of injury.

Not all of the orthopedic specialists' recommendations were implemented in the interim (ie.back slab was not applied as requested).

Recommendations:

Recommend stretcher services be implemented/utilized at all regional centers.

Recommend the Critical Care Medicine Team (CCMT) review the following two policies: “Interfacility Transfer” (CLI.5310.PR.004) & “Information Transfer at care transition Acute Care” (CLI. 4510.PL.005) to incorporate a process for delays greater than 12h. This may include and not be limited to contacting MTCC for a status update on transport services estimated time of arrival; reporting changes in patient status to ensure the chosen method/mode of transportation remains appropriate and safe.

Review the process of triaging non-urgent transfers via Medical Transportation Coordination Center (MTCC).

Educate all emergency room physicians (ERP’s) and nurses on compartment syndrome/orthopedic emergencies. To include but not limited to the following:

- *make a list of highest indexes of suspicion for compartment syndrome*
- *that compartment syndrome takes time to develop*
- *Create a “Task group” of individuals to raise awareness of compartment syndrome in the SDO. Would one of the ortho surgeons be willing to do a road trip to the regional sites and do an education session on what they want the backslabs to look like, and compartment syndrome, with teaching on using our new intra-compartmental pressure monitors?*
- *Request that orthopedic surgeons in the SDO highlight to the ERP’s when consultation occurs which patient(s) should be assessed more vigilantly for compartment syndrome*
- *Educate all ERP’s that when there is a delay in transport/admission re-assess quality of splints/back slabs for orthopedic patients waiting orthopedic surgery/consults.*
- *Compartment syndrome assessment tool (Elsevier)*

Revise current consultation form to include SBAR format to capture documentation of phone/verbal conversation with recommendations.

Suggestion:

Review data on compartment syndrome wthin the SDO.

***NOTE SUGGESTIONS DO NOT GET REPORTED TO MHSAL**