After-Hours Urgent Spine MRI for Cord Compression. Does it Change the Patient's After-Hours Management?

BACKGROUND

Malignant spinal cord compression (MSCC) is an oncological and neurosurgical emergency which occurs either when tumour spreads into the spinal canal or from pathological fracture of vertebra causing spinal cord compression. There is potentially irreversible damage occurring within hours to days and therefore rapid diagnosis is critical. Most hospitals in Australia do not operate an out-of-hours MRI service and therefore patients need to be transferred to the local tertiary centre where radiographers and radiologists are called back to perform and report the imaging.

OBJECTIVES

This study was aimed at determining the extent to which after-hours diagnostic magnetic resonance imaging (MRI) of the spine for malignant spinal cord compression was appropriate within the case hospital and whether or not it changed management after-hours.

MATERIALS/METHODS

We reviewed radiology results in all patients undergoing emergency after-hours MRI within our local health district for suspected malignant spinal cord compression or cauda equina syndrome over a 2-year period. We also reviewed the electronic medical record of patients with MRI positive for metastatic spinal cord compression to identify if urgent after-hours management occurred (radiotherapy, surgery or transfer to dedicated spinal unit for management). Outcome measures: percentage of positive MRI studies for metastatic spinal cord compression, percentage of those patients who subsequently had emergency treatment.

RESULTS

A total of 269 after-hours emergency MRI studies were performed to evaluate for spinal cord compression with 73 studies positive for spinal cord compression (27.4%) and subsequently 15 patients (20.6% of the positive studies) who had emergency treatment that same night. A total of 5.6% of patients who had emergency after-hours MRI had treatment that same night. A number of factors contributed to a lack of treatment that same night for patients who were found to have spinal cord compression including lack of acute neurological signs and symptoms, recent radiotherapy or surgery, new lesion awaiting biopsy, conflicts in scheduling for emergency theatre with other urgent cases and patient declining to proceed with surgery.

DISCUSSION

Spinal cord compression is a medical emergency with potentially high morbidity if left untreated. However, performing after-hours MRI is a costly exercise due to the need for interhospital transfers in some cases as well as call-backs for radiographers and radiologists. Therefore there needs to be a balance between strict evaluation of radiology referrals and the need to avoid missing cases of spinal cord compression. 79.4% of patients with spinal cord compression found on emergency after-hours MRI did not receive emergency treatment that same night. Some of these studies could have been performed earlier the next day. A proforma with criteria

as per international guidelines (e.g. NICE) could be helpful in triaging which patients require after-hours MRI and which patients can have an MRI at the next earliest possibility and could reduce unnecessary healthcare expenditure.

CONCLUSION

This study adds to the existing data regarding the utility of after-hours MRI service in the evaluation of malignant spinal cord compression. It may be appropriate to advise that some patients can be imaged in-hours early the next day if the patient is not a candidate for treatment that same night.

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