Canadian CT head rule study for patients with minor head injury: methodology for phase II (validation and economic analysis).

https://arctichealth.org/en/permalink/ahliterature193474

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Abstract: Prospective validation on a new set of patients is an essential test of a new decision rule. However, many clinical decision rules are not prospectively assessed to determine their accuracy, reliability, clinical sensibility, or potential impact on practice. This validation process is important because many statistically derived rules or guidelines do not perform well when tested in a new population. The methodologic standards for a validation study are similar to those described in the article on phase I for derivation studies in the August 2001 issue of Annals of Emergency Medicine. The goal of phase II is to prospectively assess the accuracy, reliability, and acceptability of the decision rule in a new set of patients with minor head injury. This will determine the clinical utility of the rule and is essential if such a rule is to be widely adopted into clinical practice.

PubMed ID: 11524653 View in PubMed

The Canadian CT Head Rule Study for patients with minor head injury: rationale, objectives, and methodology for phase I (derivation).

https://arctichealth.org/en/permalink/ahliterature193952
Head injuries are among the most common types of trauma seen in North American emergency departments, with an estimated 1 million cases seen annually. "Minor" head injury (sometimes known as "mild") is defined by a history of loss of consciousness, amnesia, or disorientation in a patient who is conscious and talking, that is, with a Glasgow Coma Scale score of 13 to 15. Although most patients with minor head injury can be discharged without sequelae after a period of observation, in a small proportion, their neurologic condition deteriorates and requires neurosurgical intervention for intracranial hematoma. The objective of the Canadian CT Head Rule Study is to develop an accurate and reliable decision rule for the use of computed tomography (CT) in patients with minor head injury. Such a decision rule would allow physicians to be more selective in their use of CT without compromising care of patients with minor head injury. This paper describes in detail the rationale, objectives, and methodology for Phase I of the study in which the decision rule was derived. [Stiell IG, Lesiuk H, Wells GA, McKnight RD, Brison R, Clement C, Eisenhauer MA, Greenberg GH, MacPhail I, Reardon M, Worthington J, Verbeek R, Rowe B, Cass D, Dreyer J, Holroyd B, Morrison L, Schull M, Laupacis A, for the Canadian CT Head and C-Spine Study Group. The Canadian CT Head Rule Study for patients with minor head injury: rationale, objectives, and methodology for phase I (derivation). Ann Emerg Med. August 2001;38:160-169.]

Notes:

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Neoplasms of the spinal cord and filum terminale: radiologic-pathologic correlation.

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Keywords: Cauda Equina
Diagnostic Imaging
Humans
Peripheral Nervous System Neoplasms - diagnosis - pathology
Spinal Cord Neoplasms - diagnosis - pathology

Abstract: Intramedullary spinal cord neoplasms are rare, accounting for about 4%10% of all central nervous system tumors. Despite their rarity, these lesions are important to the radiologist because magnetic resonance (MR) imaging is the preoperative study of choice to narrow the differential diagnosis and guide surgical resection. On contrast material-enhanced MR images, intramedullary spinal tumors almost always manifest as expansion of the spinal cord and show enhancement. Syringohydromyelia and cystic lesions are frequently associated with intramedullary tumors. Nontumoral cysts tend to be located at the poles of the tumors and do not enhance on contrast-enhanced MR images, whereas cysts within the substance of the tumor are considered tumoral cysts and typically demonstrate peripheral enhancement. Spinal cord ependymomas are the most common type in adults, and cord astrocytomas are most common in children. Both entities constitute up to 70% of all intramedullary neoplasms. A central location within the spinal cord, presence of a cleavage plane, and intense homogeneous enhancement are imaging features that favor an ependymoma. Intramedullary astrocytomas are usually eccentrically located within the cord, are ill defined, and have patchy enhancement after intravenous contrast material administration. Even with these characteristics, it may not be possible to differentiate these two entities on the basis of imaging features alone. Cord hemangioblastomas are the third most common type of intramedullary spinal tumor. Gangliogliomas commonly extend over more than eight vertebral segments. Paragangliomas and primitive neuroectodermal tumors have an affinity for the filum terminale and cauda equina. Other spinal cord tumors include metastatic disease, which is characterized by prominent cord edema for the size of the enhancing portion, and primary lymphoma.

PubMed ID: 11112826 View in PubMed

The Canadian C-spine rule for radiography in alert and stable trauma patients.

https://arctichealth.org/en/permalink/ahliterature192741
Abstract:
High levels of variation and inefficiency exist in current clinical practice regarding use of cervical spine (C-spine) radiography in alert and stable trauma patients.

To derive a clinical decision rule that is highly sensitive for detecting acute C-spine injury and will allow emergency department (ED) physicians to be more selective in use of radiography in alert and stable trauma patients.

Prospective cohort study conducted from October 1996 to April 1999, in which physicians evaluated patients for 20 standardized clinical findings prior to radiography. In some cases, a second physician performed independent interobserver assessments.

Ten EDs in large Canadian community and university hospitals.

Convenience sample of 8924 adults (mean age, 37 years) who presented to the ED with blunt trauma to the head/neck, stable vital signs, and a Glasgow Coma Scale score of 15.

Clinically important C-spine injury, evaluated by plain radiography, computed tomography, and a structured follow-up telephone interview. The clinical decision rule was derived using the kappa coefficient, logistic regression analysis, and chi(2) recursive partitioning techniques.

Among the study sample, 151 (1.7%) had important C-spine injury. The resultant model and final Canadian C-Spine Rule comprises 3 main questions: (1) is there any high-risk factor present that mandates radiography (ie, age >/=65 years, dangerous mechanism, or paresthesias in extremities)? (2) is there any low-risk factor present that allows safe assessment of range of motion (ie, simple rear-end motor vehicle collision, sitting position in ED, ambulatory at any time since injury, delayed onset of neck pain, or absence of midline C-spine tenderness)? and (3) is the patient able to actively rotate neck 45 degrees to the left and right? By cross-validation, this rule had 100% sensitivity (95% confidence interval [CI], 98%-100%) and 42.5% specificity (95% CI, 40%-44%) for identifying 151 clinically important C-spine injuries. The potential radiography ordering rate would be 58.2%.

We have derived the Canadian C-Spine Rule, a highly sensitive decision rule for use of C-spine radiography in alert and stable trauma patients. If prospectively validated in other cohorts, this rule has the potential to significantly reduce practice variation and inefficiency in ED use of C-spine radiography.
Interobserver variability in data collection of the APACHE II score in teaching and community hospitals.

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Source: Crit Care Med. 1999 Sep;27(9):1999-2004

Date: Sep-1999

Language: English

Publication Type: Article

Keywords: APACHE, Glasgow Coma Scale, Hospital Mortality, Hospitals, Community - statistics & numerical data, Hospitals, Teaching - statistics & numerical data, Humans, Intensive Care Units - statistics & numerical data, Observer Variation, Ontario, Reproducibility of Results, Risk assessment

Abstract: To examine interobserver reliability of the Acute Physiologic and Chronic Health Evaluation (APACHE) II score and identify major causes of variability in data collection.

Descriptive, comparative analysis.

Nine intensive care units in two teaching and six community hospitals

A random sample of 342 patient records selected from a network database.

None.

Data were reabstracted and compared with the original records. Individual physiologic points derived from the APACHE II scoring system (instead of the actual physiologic values) were compared using the kappa statistic. Paired measurements of the continuous variables were compared using the interclass correlation coefficient and Bland-Altman plots. Excellent agreement was found in most demographic, admission, and discharge data. The system failure requiring intensive care unit admission was consistently identified by both data collectors in 88% of cases, but only 66% agreed on the exact admitting diagnosis. For APACHE II score components, the kappa statistic ranged from 0.315 for the Glasgow Coma Scale point to 0.976 for the age point. Significant disagreement regarding the probability of death derived from the APACHE II model was evident in some patient records. Overall agreement among groups of patients regarding the APACHE II score was good, however, with no significant difference in the mean score (20.2 vs. 20.1; p = .758). The predicted mortality from the reabstracted data was 30%, similar to the 27% predicted mortality from the original data (p = .380).

Reliability of data collection varied widely in different components of the APACHE II probability-of-death model. Significant discrepancies in some components suggested a lack of explicit definitions and timing for consistent data collection between institutions or between data collectors. Nonetheless, variability resulting from data collection appears to be randomly distributed, so that comparisons of group means are valid.

PubMed ID: 10507631 View in PubMed
Iodine Redistribution During Trauma, Sepsis, and Hibernation: An Evolutionarily Conserved Response to Severe Stress.

https://arctichealth.org/en/permalink/ahliterature304550

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Language: English

Publication Type: Journal Article

Abstract: We performed these studies to learn how iodine in the form of free iodide behaves during stress.

Prospective observational trial using samples obtained from human trauma patients and retrospective observational study using remnant samples from human sepsis patients and arctic ground squirrels. Preclinical interventional study using hind-limb ischemia and reperfusion injury in mice.

Level I trauma center emergency room and ICU and animal research laboratories.

Adult human sepsis and trauma patients, wild-caught adult arctic ground squirrels, and sexually mature laboratory mice.

Ischemia and reperfusion injury was induced in mice by temporary application of tourniquet to one hind-limb. Iodide was administered IV just prior to reperfusion.

Free iodide was measured using ion chromatography. Relative to iodide in plasma from normal donors, iodide was increased 17-fold in plasma from trauma patients and 26-fold in plasma from sepsis patients. In arctic ground squirrels, iodide increases over three-fold during hibernation. And during ischemia/reperfusion injury in mice, iodide accumulates in ischemic tissue and reduces both local and systemic tissue damage.

Iodide redistributes during stress and improves outcome after injury. Essential functions of iodide may have contributed to its evolutionary selection and be useful as a therapeutic intervention for human patients.


PubMed ID: 33063025 View in PubMed

Prenatal antidepressant exposure and child behavioural outcomes at 7 years of age: a study within the Danish National Birth Cohort.

https://arctichealth.org/en/permalink/ahliterature278000
Abstract: To investigate the impact of prenatal antidepressant exposure on behavioural problems in children at 7 years of age.
Nationwide population-based study.
Danish National Birth Cohort.
Data obtained from computer-assisted telephone interviews twice during pregnancy were used to identify children born to: (i) depressed women who took antidepressants during pregnancy (n = 210); (ii) depressed women who did not take any antidepressants during pregnancy (n = 231); and (iii) healthy women who were not depressed (n = 48,737). Childhood behavioural problems at 7 years of age were examined using the validated Danish parent-report version of the Strengths and Difficulties Questionnaire (SDQ).
SDQ scores.
No associations were observed between prenatal antidepressant exposure and abnormal SDQ scores for overall problem behaviour (adjusted relative risk, aRR 1.00; 95% confidence interval, 95% CI 0.49-2.05), hyperactivity/inattention (aRR 0.99; 95% CI 0.56-1.75), or peer problems (aRR 1.04; 95% CI 0.57-1.91). Although prenatal antidepressant exposure appeared to be associated with abnormal SDQ scores on the subscales of emotional symptoms (aRR 1.68; 95% CI 1.18-2.38) and conduct problems (aRR 1.58; 95% CI 1.03-2.42), these associations were significantly attenuated following adjustment for antenatal mood status (aRR 1.20; 95% CI 0.85-1.70 and aRR 1.19; 95% CI 0.77-1.83, respectively). Untreated prenatal depression was associated with an increased risk of all behavioural outcomes evaluated, compared with unexposed children, with significant attenuation following adjustment for antenatal mood status.
The results of this study suggest that independent of maternal illness, prenatal antidepressant exposure is not associated with an increased risk of behavioural problems in children at 7 years of age.
Prenatal antidepressant exposure is not associated with an increased risk of child behavioural problems.

Notes: Comment In: BJOG. 2016 Nov;123(12):193726694864
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Analysis of hospital discharge data to characterize obstructive sleep apnea and its management in adult patients hospitalized in Canada: 2006 to 2007.
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Source: Can Respir J. 2010 Sep-Oct;17(5):213-8
Language: English
Publication Type: Article
Abstract: Diagnosed obstructive sleep apnea (OSA) affects 2% to 7% of middle-age persons worldwide and represents a substantial health care burden. The gold standard for treating OSA in adults is continuous positive airway pressure (CPAP) therapy. Compliance with this treatment is especially important in OSA patients experiencing concomitant acute and chronic disease or illness, and those undergoing procedures associated with sedation, analgesia and anesthesia.

To describe the clinical characteristics and management of hospitalized OSA patients in Canada. Using the Canadian Institute for Health Information’s hospital Discharge Abstract Database (fiscal year 2006/2007), a retrospective cohort study of all acute care patients discharged with a diagnosis that included OSA was performed.

An examination of the discharge data of 2,400,245 acute care hospital abstracts identified 8823 cases of OSA. The mean age of OSA patients was 45.7 years and 66.5% were men. The most common comorbidities in the adult OSA population were obesity, cardiovascular disease, type 2 diabetes mellitus and chronic obstructive pulmonary disease. In adult OSA patients, the reported surgical intervention rate using uvulopalatopharyngoplasty (9.6%) was much higher than interventional CPAP therapy (4.8%).

Only a small percentage of hospitalized OSA patients were documented as having received CPAP therapy during their stay. Issues relating to the accuracy, specificity and completeness of the Canadian Institute for Health Information’s hospital Discharge Abstract Database specific to OSA and its management were identified. Practices pertaining to the reporting, coding and management of hospitalized adult OSA patients warrant further investigation and research.
Prenatal exposure to selective serotonin reuptake inhibitors and childhood overweight at 7 years of age.

https://arctichealth.org/en/permalink/ahliterature106773

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Date: Nov-2013

Language: English

Publication Type: Article
To investigate a possible association between prenatal selective serotonin reuptake inhibitor (SSRI) exposure and childhood overweight at 7 years of age.

Information on pregnancy exposures and prevalence of childhood overweight at 7 years of age was obtained from the Danish National Birth Cohort. Overweight was classified as body mass index >85th percentile, based on age and sex. Based on an a priori hypothesis, we conducted analyses stratified by child sex to examine sex-specific differences.

Of eligible pregnant women, 127 reported using an SSRI, 490 reported having a psychiatric illness but no psychotropic medication use, and 35,568 reported no psychiatric illness and no psychotropic medication use. In comparison to children of mothers with a psychiatric illness but no SSRI use during pregnancy, prenatal SSRI exposure overall was not associated with an increased risk of childhood overweight (adjusted prevalence ratio [aPR] 1.12; 95% confidence interval 0.71 to 1.77). However, when stratified according to child sex, an increased risk was observed among males (aPR 1.78; 95% CI, 1.01 to 3.12) but not females (aPR 0.86; 95% CI, 0.37 to 1.99). In contrast, female children of mothers with a psychiatric illness but no SSRI use during pregnancy were more likely to be overweight than female children of unexposed mothers (aPR 1.45; 95% CI, 1.05 to 2.02). This association was not mirrored among males (aPR 1.06; 95% CI, 0.76 to 1.50).

We observed the potential for opposing sex-specific differences in the long-term effects of prenatal exposure to SSRI use and/or maternal psychiatric illness on childhood overweight. Limitations of the present study suggest that further research in this area may be warranted with larger sample sizes and longer follow-up.