

stress and barrier to societal reintegration for affected patients. We sought to quantify the labor market implications for tax-filing adult TBI survivors. Methods: We performed a matched difference-in-difference analysis using a national retrospective cohort of working adult TBI survivors injured between 2007-2017. Linear and logistic mixed effects regressions were used to estimate the magnitude of personal income loss and proportion of patients displaced from the workforce in the three post-injury years (Y+1 to Y+3). Results: Among 18,050 patients identified with TBI, the adjusted average loss of personal annual income was \$-7,635 dollars in Y+1 and \$-5,000 in Y+3. An additional -7.8% individuals were newly unemployed compared to the pre-injury baseline. For mild, moderate, and severe TBI subgroups, income loss was \$-3354, \$-6750, and \$-17375 respectively in Y+3; the proportion of newly unemployed individuals in Y+3 was 5.8%, 9.2%, and 20% lower than baseline. We estimated 500 million dollars of incurred labor markets losses related to TBI in Canada. Conclusions: This work represents the first national cohort data quantifying the labor market implications of TBI. These results may be used to inform post-injury care pathways and vocational rehabilitation.

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Days at home after traumatic brain injury: moving beyond mortality to evaluate patient-centered outcomes using population health data

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Background: Despite the utility of administrative health data, there remains a lack of patient-centered outcome measures to meaningfully capture morbidity after traumatic brain injury (TBI). We sought to characterize and validate days at home (DAH) as a feasible measure to assess population-level moderate to severe TBI (msTBI) outcomes and health resource utilization. Methods: We utilized linked health administrative data sources to identify adults with msTBI patients presenting to trauma centers in Ontario injured between 2009-2021. DAH at 180 days reflects the total number of days spent alive and at home excluding the days spent institutionalized in acute care, rehabilitation, inpatient mental health settings or post-acute readmissions. Construct and predictive validity were determined; we additionally estimated minimally important difference (MID) in DAH_{180days}. Results: There were 6340 patients that met inclusion criteria. Median DAH_{180days} were 70 days (interquartile range 0-144). Increased health resource utilization at baseline, older age, increasing cranial injury severity and major extracranial injuries were significantly associated with fewer DAH_{180days}. DAH_{180days} was correlated to DAH counts at 1-3 years. The average MID estimate from anchor-based and distribution-based methods was 18 days. Conclusions: We introduce DAH_{180days} as a feasible and sufficiently responsive patient-centered outcome measure with construct, predictive and face validity in an msTBI population.

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Antiplatelet and anticoagulation use and outcomes following chronic subdural hematoma drainage: systematic review and meta-analysis

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Background: Chronic subdural hematoma (CSDH) is a common neurosurgical condition which can be treated with surgical evacuation. A significant percentage of CSDH patients are on antiplatelet or anticoagulation therapy at baseline which may influence risk of recurrence and postoperative thromboembolic events. Methods: A search was conducted in MEDLINE (1946 to April 6, 2023), Embase (1974 to April 6, 2023), and PubMed (up to April 6, 2023) on preoperative use of antiplatelet or anticoagulation therapy and outcomes following surgical evacuation of CSDH. Results: Our literature includes 14,410 patients from 42 studies, with 3218 (22%) in the antiplatelet (AP) group, 1731 (12%) in the anticoagulation (AC) group, and 9537 (66%) in the no antithrombotics (NA) group. The AP group had significantly higher recurrence compared to NA (OR = 1.21, 95% CI = 1.04 to 1.40, p = 0.01). The AC group also had significantly high recurrence compared to NA (OR = 1.39, 95% CI = 1.15 to 1.68, p = 0.0007). However, being on any antithrombotic therapy is also associated with significantly higher thromboembolic events (OR 5.41, 95% CI 3.16 to 9.26, p < 0.00001). Conclusions: Patients on antithrombotic therapy have both higher recurrence and higher thromboembolic risk compared to patients not on antithrombotic therapy.

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NIRS regional oxygen saturation based cerebrovascular reactivity in the recovery from moderate/severe TBI

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Background: Near-infrared spectroscopy (NIRS) regional cerebral oxygen saturation (rSO₂) based cerebrovascular reactivity (CVR) indices have enabled the entirely non-invasive continuous monitoring. This study aims to compare CVR in those recovering from moderate/severe TBI to a health control group. Methods: In this prospective cohort study the cerebral oxygen CVR index, COx_a (using rSO₂ and arterial blood pressure), was measured in subjects with moderate/severe TBI at follow-up. COx_a was also measured in a group of healthy controls. CVR was compared within and between these groups using conventional statistics. Results: A total of 101 healthy subjects were recruited for this study along with 29 TBI patients. In the health cohort COx_a was not statistically different between males and females or in the dominant and non-dominant hemisphere. The TBI cohort, COx_a was not statistically different between first and last available

follow up. Surprisingly, CVR as measured by CO_xa was statistically better in those recovering from TBI than in the healthy cohort. Conclusions: In the prospective cohort study, CVR as measured by NIRS based methods, was found to be more active in those recovering from TBI than in a healthy cohort. This study may indicate that, in those that survive TBI, CVR may be enhanced as a neuroprotective measure.

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Subgaleal versus subdural drain after minicraniotomy for chronic subdural haematoma

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Background: Subdural and subgaleal drains are equally effective after burrhole craniotomy for chronic subdural haematoma, however the optimal location of drains after minicraniotomy is not clear. As such we present the first study to assess this. **Methods:** Consecutive patients undergoing minicraniotomy for cSDH between 2019 and 2023 at a single institution were included. Subgaleal drains were placed exclusively by a single surgeon with the rest of the department utilising standard subdural drains. Cases were stratified by drain location. Primary outcomes included changes in functional status (Modified Rankin Score, mRS) at 3 months from preoperative baseline. **Results:** A total of 137 patients were included, of which 24.6% received subgaleal drains. Discharge home was higher in the subgaleal group compared to subdural group (79.4% vs 57.3%, $p=0.02$). Subgaleal drain location ($p<0.0001$) and better preoperative GCS ($p=0.01$) were predictors of improved 3 month mRS. Worse pre-morbid mRS ($p=0.002$), subdural drain ($p=0.004$), and decreased consciousness at presentation ($p<0.002$) were predictors of not being discharged home. Surgical recurrence was lower in the subgaleal group than the subdural group (2.9% vs 13.6%, $p=0.12$), but not statistically significant. **Conclusions:** Subgaleal drains are associated with shorter hospitalisation, greater chance of discharge home, and better functional outcomes than subdural drains.

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Left temporal aneurysm resection: surgical approach in Pial-Pial collateral formation from the posterior temporal artery secondary to left internal artery occlusion

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Background: The formation of pial-pial collateral network aneurysms due to carotid occlusion is a rare neurological

phenomenon. This case details a 69-year-old male who developed a pial-pial collateral network aneurysm secondary to left internal carotid artery occlusion, leading to intracranial hemorrhage. **Methods:** The patient presented with altered consciousness due to left temporal intracerebral hemorrhage, subdural hematoma, and intraventricular hemorrhage. Cerebral angiography revealed an occluded left internal carotid artery, with superficial temporal artery (STA) and superior orbital artery anastomosis, and extensive pial-pial collaterals from the posterior temporal artery. A 4 mm aneurysm arising from this collateral network was identified. Surgical intervention involved a left temporal craniectomy and excision of the aneurysm, prioritizing the preservation of the STA. N.B., Informed patient consent was obtained in this study. **Results:** Successful aneurysm removal and preservation of collateral pathways were confirmed by postoperative imaging. The patient exhibited rapid neurological improvement; by postoperative day (POD) one, the patient showed limited response to stimuli. He was extubated by POD4 and discharged on POD27, where he conversed well, was independently ambulatory, and needed minimal to no assistance in activities of daily living. **Conclusions:** This case highlights the need for careful preoperative planning and intraoperative precision, especially in preserving vital collateral vascular pathways.

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Is there an association between geographical location of patients in NS and management of unruptured, incidental intracranial aneurysm?

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Background: Managing unruptured cerebral aneurysms involves monitoring or repair, with complex factors influencing decision-making. Geographical distance from treatment centers is an understudied factor. This study explores a potential relationship in Nova Scotia between proximity to the sole neurosurgical center in Halifax and aneurysm management. **Methods:** A prospectively collected neurosurgery database was used to identify all adults seen for unruptured cerebral aneurysm between Jan 1, 2015 - Dec 31, 2020. Demographic data, aneurysm characteristics, follow-up and treatment information were collected. Univariate and multivariate analyses assessed management differences based on geography, controlling for relevant factors including aneurysm size and location. **Results:** Among 390 patients, 40% were in Halifax, and 60% were outside. No significant difference existed in elective repair (34% vs. 26%, $p=0.143$) and imaging follow-up frequency (2.26 vs. 2.22, $p=0.858$). In-person follow-up was higher within Halifax (1.83 vs. 1.43, $p=0.008$), while virtual follow-up was significant outside Halifax (1.44 vs. 1.01, $p=0.003$). Overall, in-person and elective repair frequencies declined with the COVID-19 peak, whereas virtual follow-up increased. **Conclusions:** No significant association was found between patient location and repair decisions. Patients in closer proximity had more in-person follow-ups, while those farther away had more virtual follow-ups. The COVID-19 pandemic affected follow-up frequencies universally.