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Review of imaging changes, cognitive decline, and dementia risk in cancer survivors after chemotherapy

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Background: Cancer survival rates in Canada have been improving, leading to a steady increase in the number of survivors entering the typical ages of dementia onset. Yet, some cancer treatments (e.g. chemotherapy) are neurotoxic and adversely affect normal brain functioning. We conducted a review to examine changes observed in brain imaging and cognitive measures in survivorship, and long-term risk of dementia among cancer survivors. Methods: 91 Primary studies were selected from PubMed. Inclusion criteria were studies investigating the changes in brain imaging, cognition, and future dementia risk among adult survivors who received chemotherapy. Study quality was assessed based on 1) prospective, controlled design, 2) sample size, and 3) validated imaging and cognitive metrics. Results: Imaging studies identified MRI-based structural grey and white matter changes and functional network changes among survivors. Cognitive studies reported heterogeneous impairments in attention, memory, and executive function. In studies that examined dementia risk among cancer survivors, 67% reported lower risk of dementia, while 33% reported no association or a higher risk. Conclusions: While short-term cognitive impairment with associated changes on brain imaging is widely reported, findings concerning future or long-term cognitive impairment are mixed. Studies are warranted to identify potential connections between short-term and long-term cognitive function after cancer treatment.

P.024

Sex and gender reporting in clinical trials among neurological US Food and Drug Administration approvals

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Background: Sex and gender are related but distinct determinants of disease, treatment response, and research reproducibility whose consideration is increasingly required for research funding. Nevertheless, the quality of sex and gender reporting in neurological randomized controlled trials (RCTs) remains unknown. Methods: This ongoing study of RCTs associated with Food and Drug Administration neurological drug approvals aims to determine the frequency of accurate reporting of RCT participants' sex and gender. Secondary outcomes include changes in reporting over time and RCT design characteristics. Results: Preliminary analysis included 145 RCTs (153,410 participants) associated with 77 medications approved in 1985-2023, most commonly for epilepsy (19%), migraine (16%), and multiple sclerosis (16%). Sixty-six RCTs (45.5%) used sex-related terms appropriately. Nine RCTs (6.2%) reported gender accurately. Fifty-three RCTs (37%) used sex- or gender-related terms interchangeably. There are no statistically significant differences in the proportions of studies reporting sex and/or gender accurately when comparing those published until versus after 2017. No RCT reported sex or gender collection methods, definitions of sex or gender, or including sex or gender minority participants. Conclusions: Preliminary results suggest shortcomings in reporting sex and, especially, gender accurately and inclusively among neurological drug RCTs and no significant improvement thereof in recent years.

Stroke

P.025

Accuracy of code stroke activations: a tale of two comprehensive stroke centres

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Background: We evaluated the accuracy of code strokes activations at two comprehensive stroke centres in Toronto, Canada. Methods: We conducted a multi-centre, retrospective cohort study of all adult patients seen as code stroke in emergency rooms (ER) of two comprehensive stroke centres (CSC) in Toronto, Canada between January 1, 2022 and Dec 31, 2022. We included cases where the code stroke was activated in the field by paramedics and where it was activated in the ER by a physician. We reported off-criteria code stroke activations as the proportion of code stroke activations that did not meet all criteria for activation, and described the criteria that were not met. Results: A total of 677 (61.9% paramedic) code strokes were seen at CSC1 and 439 (80.6% paramedic) at CSC2. At CSC1, 21.2% paramedic-activated and 38.6% ER-activated were off-criteria, and at CSC2, 14.2% paramedic-activated and 48.1% ER-activated code stroke were off-criteria. Most of these were due to incorrect assessment of the last seen normal time. Conclusions: One in five code strokes did not meet criteria for activation. Improving the accuracy of paramedic and ER assessment of last seen normal time may be an avenue to reduce off-criteria code stroke activations.

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Success with incrementally faster times to endovascular therapy (SWIFT-EVT): a systematic review and meta-analysis

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Background: Previous research demonstrates that for acute ischemic stroke (AIS) cases, rapid endovascular therapy (EVT)

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