

care of NC survivors in Alberta. **METHODS:** The ACE program is open to survivors with any cancer diagnosis at any stage of treatment. Exercise programming consists of two training sessions per week, with the pilot and implementation studies being 8 and 12 weeks in duration respectively. Outcomes are assessed at study baseline, post-exercise intervention, and 24-week follow-up, and include recruitment and follow-up rates, health-related fitness, psychosocial outcomes, and cancer symptoms. **RESULTS:** NC survivors represented 7 of 80 participants in the ACE pilot; however, only 3 of the 7 (43%) completed the study. Findings suggested a need for consideration of supervised exercise for some survivors with NC. To date, 14 NC survivors have enrolled in the ACE implementation study. Participants are screened and then referred to either supervised clinic-based or community-based exercise. Seven of 9 participants have completed the ACE intervention, and 5 of 5 have completed the 24-week follow-up. NC participants improved or maintained health-related physical fitness, and reported reduced symptom burden and fatigue. **CONCLUSION:** Preliminary results suggest exercise training is feasible and beneficial for NC survivors. To optimize recruitment and outcomes, efforts are needed to better identify, screen, and refer survivors to appropriate exercise programming.

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doi:10.1017/cjn.2018.259

Combining an oncolytic vaccinia virus with image-guided radiotherapy: a multi-modal therapeutic approach for treating glioma

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Malignant gliomas (MG) are highly invasive and aggressive brain tumors. Despite the current standard of care, the prognosis for patients with MG is abysmal—highlighting the need for novel, more effective treatment options to combat this aggressive disease. Oncolytic virus (OV) therapy is an advancing treatment option that harnesses tumor-selective viruses to kill cancer cells while simultaneously facilitating a systemic anti-tumor immune response. Many studies have noted synergistic effects when OV's are combined with radiotherapy in preclinical cancer models, warranting further investigation of this multi-modal approach. Image-guided radiotherapy (IGRT) uses computer-modulated imaging techniques to precisely deliver ionizing radiation to treat cancer. Despite the precision IGRT offers, cancer cells can still be 'missed' due to tumor microextensions or radioresistant cell populations—such as glioma stem cells or therapy-induced senescent cancer cells—and may contribute to recurrence or progression. Here we propose to combine our mCherry-tagged mutant vaccinia virus (deltaF4L-deltaJ2R-mCherry), which exhibits tumor-selectivity due to mutations in key viral nucleotide biosynthesis genes, with IGRT executed using state-of-the-art Small Animal Radiation Research Platform (SARRP) technology. We hypothesize that combining deltaF4L-deltaJ2R-mCherry with IGRT will produce better tumor control than either modality alone, by generating additive or synergistic effects in which IGRT destroys the majority of the tumor mass while our OV seeks out and targets any remaining cancer cells that have been missed or are resistant to radiotherapy.

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doi:10.1017/cjn.2018.260

Tailored exercise for survivors with brain tumours: A case series

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Purpose: Exercise has been shown to be beneficial for the physical and psychological health of cancer survivors, however, little research has been conducted on the effects of exercise in the brain tumour population. Survivors with brain tumours present with unique challenges in terms of mobility and function that may compromise their ability to safely take part in community-based exercise. **Methods:** Three survivors with primary brain tumours will be profiled in this case series presentation. Participants were screened using a cancer specific intake questionnaire and the Physical Activity Readiness Questionnaire, and triaged to supervised clinic-based or community-based exercise. All participants completed the 12-week intervention for the Alberta Cancer Exercise (ACE) study. Measurements were taken at baseline, and post-intervention including measures of body composition, aerobic fitness, musculoskeletal fitness, balance and flexibility. Self-reported measures included questionnaires to assess impact on physical functioning, symptoms and quality of life, and to evaluate satisfaction with programming. **Results:** One participant was referred to supervised clinic-based exercise programming due to a high risk of falls, and two participants were deemed safe and approved for community-based supported exercise programming at a preferred location closer to their home. Preliminary results suggest high program satisfaction, maintenance and/or benefit of physical fitness, balance, and symptom control. **Conclusions:** Further efforts are needed to better tailor programming to the needs of the survivor and consideration given to the advantages of the supervised clinic-based environment when compared to the survivor preference for a "closer to home" community-based setting.

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doi:10.1017/cjn.2018.261

Autophagy related metals in IDH1 mutant glioma: Chloroquine and TMZ as a potential novel strategy to treat IDH1 mt gliomas

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Glioblastoma is considered among the most aggressive cancers, dismal prognosis and overall survival is only 14 months, 80% of primary low grade gliomas and secondary GBMs that progress from low grade to grade II or III WHO classification have isocitrate dehydrogenase, (IDH1) or IDH2, mutations [1]. IDH1 mutant glioma is characterized by impaired glycolysis activity resulting in an abnormal production of 2-hydroxyglutarate (2-HG) [2] resulting in an undifferentiated phenotype with permanent hyper-methylation status and enhanced proliferation and invasion[3]. Interestingly, the IDH1 mutant phenotype of U87MG glioma cells shows resistance to autophagy induced cell death even in starving and low oxygen conditions [4]. Recent evidence has demonstrated increased autophagy activity on IDH1 mt cytotoxic