

Best Case Presentation

Disseminated BCG Sepsis with Bone Marrow, Liver, and Lung Involvement Following Intravesical Bacillus Calmette-Guerin (BCG) Therapy

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Keywords

intravesical BCG, disseminated BCG, mycobacterium bovis, sepsis, pancytopenia

Abstract

A 54-year-old man presented to the emergency department with sepsis one week after receiving an intravesical administration of Bacillus Calmette-Guerin (BCG) for the treatment of urothelial carcinoma. He was admitted to hospital for potential urosepsis and was started on broad-spectrum antibiotics. Despite this therapy he had persistent fevers, tachycardia, and diaphoresis. He also developed pancytopenia, hepatitis, and pneumonitis while in hospital. A presumptive diagnosis of BCG dissemination is made and he was started on rifampin, isoniazid, and ethambutol in addition to high-dose prednisone. A bone marrow biopsy shows granulomas suggestive of mycobacterium infiltration. The stains for acid-fast bacilli in the bone marrow are negative. BCG is a live, attenuated strain of mycobacterium bovis. High-grade non-muscular invasive bladder cancer is commonly treated with intravesical administration of BCG. This treatment often lasts over three years.¹ The potential adverse events associated with BCG are broad and may occur months to years after administration. Local mycobacterium

may cause cystitis, while dissemination may lead to multi-organ dysfunction including sepsis, hepatitis, nephritis, pneumonitis, pancytopenia, osteomyelitis, and arthritis.² Less than 0.4% of intravesical BCG treatments become disseminated. These adverse events have been attributed to both the primary mycobacterium infection and to hypersensitivity reactions. Patients with disseminated BCG often have a favourable response to treatment with anti-tuberculosis medications and corticosteroids.³ BCG is the standard of care for certain types of urothelial carcinoma in Canada. This case helps illustrate the spectrum of serious adverse events associated with this therapy. As indicated by cases in the literature, early diagnosis and treatment can lead to good outcomes. General internists should have a high index of suspicion for any patient presenting with organ dysfunction with an immediate or remote history of intravesical BCG administration.

References

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Best Research Abstract

Systematic Review: The Cost-Effectiveness of Exercise Programs Used as A Primary Prevention in Patients with Moderate to High Risk of Cardiovascular Disease

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Keywords

exercise, lifestyle, cost-effectiveness, cardiovascular disease, primary prevention

Purpose

Exercise intervention for the secondary prevention of cardiovascular disease is well supported by evidence, but reports on its cost-effectiveness in primary prevention are rare. We aim to review the current knowledge concerning the cost-effectiveness of exercise programs used in patients with moderate to high risk of cardiovascular disease.

Methods

A search was performed for economic evaluations of exercise interventions in patients with at least one risk factor for cardiovascular disease. A search containing terms including “exercise,” “costs and cost analysis,” and “cardiovascular disease” was performed and reviewed independently by two researchers. Cost-effectiveness was described based on a model for evaluating interventions intended to promote physical activity.

Results

Our search resulted in 306 articles, 12 of which met our inclusion criteria. Eight were randomized controlled trials and 4 were models with hypothetical cohorts. Six studies examined diabetic patients, 1 examined hypertensive patients, 2 examined obese patients, and 3 examined patients with combined risk factors for cardiovascular disease. Exercise interventions were broad, ranging from 6 hours to 10 years. Ten studies concluded their interventions as cost-effective, 1 as not cost-effective, and 1 as inconclusive.

Conclusion

The literature on exercise interventions used in primary prevention for patients with moderate to high risk of cardiovascular disease strongly supports their cost-effectiveness. However, the studies reviewed were very heterogeneous in the duration and intensity of their interventions. Future research directions should examine the efficacy and cost-effectiveness of standardized lifestyle interventions, with the aim of garnering enough evidence to support or refute their utility in the primary health care setting.



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The Canada-Guyana Medical Education Project: a win-win partnership among post-graduate medical residents.

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Keywords

medical education, international residency education

Background

Guyana is a South American nation with a population of 735,000 and a single accredited medical school. Previously there was no post-graduate training in Guyana; students had to pursue specialist training in the United States or Cuba. The majority of trainees who left Guyana did not return, exacerbating the paucity of trained physicians in Guyana. A Guyana-based, internal medicine (IM) post-graduate program was established in 2013 with the goal of retaining IM specialists. However, lack of instructors and formalized teaching sessions are barriers to the program's success. The objective of this project is to foster a partnership between The University of Calgary and University of Georgetown's IM programs for the development of sustainable, mutually beneficial, resident-led videoconference teaching sessions.

Methods

Calgary residents volunteered to create and present weekly teaching sessions to Guyanese residents based on Canadian Royal College of Physician and Surgeons learning objectives via videoconference. Guyanese trainees provided feedback to Calgary

residents using Likert-scale based questionnaires on teaching style, content, and organization. A similar survey was completed by Calgary residents to assess the value of participation in this project. Proportions of residents who gave a positive response or agreed to each survey question were reported.

Results

Twenty-four videoconference-teaching sessions were conducted over 7 months with a total of 191 and 16 surveys completed by Guyana and Calgary residents, respectively. An average of 8/14 Guyanese residents attended each session. Over 92% of Guyana and Calgary residents agreed that the sessions enhanced their learning, 93% reported increased interest in international collaboration, and 95% would recommend the sessions to co-residents. Furthermore, 88% of Calgary residents felt the sessions improved their teaching skills and 100% wished to present again.

Conclusions

The formation of a resident-led, videoconference teaching series is a mutually beneficial partnership for Canadian and Guyanese medical residents and fosters international collaboration in medical education.



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