

ORTHOPAEDICS



FOR PRIMARY
HEALTH CARE



LION

LEARNING INNOVATION VIA
ORTHOPAEDIC NETWORKS

UNIVERSITY OF CAPE TOWN'S **ORTHOPAEDIC DEPARTMENT**

Editor: Michael Held

HIV in Orthopaedic Patients

Author: Peter Botha, Simon Graham, Maritz Laubscher

Learning Objectives

1. Identify common musculoskeletal conditions in HIV population
2. Diagnose and manage complications related to HIV and ARV's
3. Understand the indications for surgical management and urgent referral.

Introduction

Human Immunodeficiency Virus (HIV) is a retrovirus that targets CD4+ T cells within our immune system, specifically affecting humoral immunity. Without treatment the infection advances with CD4+ T cells falling below a certain level with resultant susceptibility to HIV complications and opportunistic infections. With the introduction of antiretroviral (ARV) agents, HIV- infected patients can now live a normal life with a life expectancy comparable to those patients without HIV.

How HIV affects orthopaedic surgery

- Specific musculoskeletal conditions are associated with HIV and the treatment of HIV
- Peri-operative optimization needs to be implemented in HIV positive patients
- There is a risk to healthcare workers to blood exposure

Implant-associated infections

There is no clear evidence that HIV infection increase implant related infections. There is however some

evidence showing an increased infection rate with orthopaedic implants in HIV positive individuals with low CD4+ counts and in open fractures.

TB osteomyelitis and septic arthritis

The spine is the most common site of involvement. Joints are more commonly involved than bones.

Non-Tuberculosis osteomyelitis:

The bacteriology of osteomyelitis includes the same causative organisms as in HIV negative individuals. Fungi are rare causes of osteomyelitis in HIV positive individuals.

Septic arthritis: Bacterial and atypical organisms are causative.

Avascular necrosis / osteonecrosis

The femoral head is the most common site of involvement. Both the HIV virus and ARV therapy have been implicated.

Incidence: 4% in the HIV population, 35-80% bilateral involvement.

Other risk factors to be excluded: Alcohol, oral corticosteroids, hyperlipidemia, coagulopathies, smoking, chemotherapy, trauma, inflammatory arthropathies.

Decreased bone mineral density (BMD)
HIV positive individuals have an increased risk of decreased BMD and decreased bone mass. Both the HIV virus and ARV's are implicated. Tenofovir is the ARV drug most implicated.

HIV associated arthropathies

-Primary HIV arthropathy

Transient (symptom duration < 6 weeks); single joint involvement (lower limbs). X-ray show non-erosive lesions. A joint aspiration reveals a non-inflammatory process. The treatment is symptomatic (analgesia, NSAIDS & intra-articular corticosteroids).

-Seronegative spondyloarthropathies

Psoriatic arthritis and reactive arthritis are more common in HIV-infected patients.

Myopathies

Muscle pain is a common problem in HIV patients. ARV therapy associated with weakness, myalgia, and myopathy.

Infectious pyomyositis

This is a common complication of advanced HIV disease. Staphylococcus Aureus is the most common causative organism. Patients present with a painful, swollen limb / muscles and systemic features of infection. Investigations should include blood cultures, FBC, CRP, and s-creatinine kinase levels. An MRI scan is most useful (enhanced fluid collections), contrasted CT alternative. For treatment early diagnosis is key and aggressive management with intravenous antibiotics should be started along with incision and

drainage of any collections.

Primary / non-infectious myositis

Patients present with proximal muscle weakness that is often symmetrical.

Neoplasms

Certain neoplasms have an increased incidence in HIV positive individuals.

Non-Hodgkin Lymphoma

A neoplasm of lymphoid cells. 60 times higher risk in the HIV population. Predominantly involving the axial skeleton.

Kaposi sarcoma

The most common HIV associated malignancy. Rarely involves the musculoskeletal system.

Perioperative optimization

The issues of concern are the influence of HIV on the outcome and treatment of polytrauma, open- and closed fractures and elective surgery like total joint replacements. HIV does not preclude patients from undergoing elective surgery. A lot of the published research is based on individuals not receiving antiretroviral therapy and more information would be available in future.

Potential peri-operative complications in HIV positive individuals:

- Polytrauma: Higher risk of pulmonary, renal and infective complications.
- Implant sepsis (see earlier comments)
- Delayed or non-union of fracture: NO proven increased risk.

HIV positive individuals also more likely to have other risk factors for poor surgical outcomes:

- Malnutrition
- Other opportunistic infections

Any patient undergoing surgery in a high prevalence area (like South Africa) should be encouraged to undergo a HIV test.

Any HIV positive individual undergoing elective surgery should have adequate work up, including:

- CD4+ count and viral load: Caution is advised with the use of orthopaedic implants in patients with low CD4+ counts and high viral loads.
- Nutrition: Test and optimize.
- Screening for opportunistic infections (particularly TB).

Risk to healthcare workers

Occupational exposure to HIV is a risk to health care workers. Orthopaedic surgery carries a high risk of exposure to blood when treating open wounds and in the operating theatre. Contact precautions most always be used when in contact with bodily fluids of patients. When an exposure occurs post-exposure prophylaxis (PEP) should be initiated immediately until the patient's HIV status is known. With PEP the risk of seroconversion from an occupational exposure is extremely small.

References

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Editor: Michael Held

Conceptualisation: Maritz Laubscher & Robert Dunn - **Cover design:** Carlene Venter Creative Waves - **Developmental editing and design:** Vela and Phinda Njisane

About the book

Informed by experts: Most patients with orthopaedic pathology in low to middle-income countries are treated by non-specialists. This book was based on a modified Delphi consensus study with experts from Africa, Europe, and North America to provide guidance to these health care workers. Knowledge topics, skills, and cases concerning orthopaedic trauma and infection were prioritized. Acute primary care for fractures and dislocations ranked high. Furthermore, the diagnosis and the treatment of conditions not requiring specialist referral were prioritized.

The LION: The Learning Innovation via orthopaedic Network (LION) aims to improve learning and teaching in orthopaedics in Southern Africa and around the world. These authors have contributed the individual chapters and are mostly orthopaedic surgeons and trainees in Southern Africa who have experience with local orthopaedic pathology and treatment modalities but also in medical education of undergraduate students and primary care physicians. To centre this book around our students, iterative rounds of revising and updating the individual chapters are ongoing, to eliminate expert blind spots and create transformation of knowledge.

Reference: Held et al. Topics, Skills, and Cases for an Undergraduate Musculoskeletal Curriculum in Southern Africa: A Consensus from Local and International Experts. JBJS. 2020 Feb 5;102(3):e10.

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