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CLINICS IN SPORTS MEDICINE

Infectious Disease and Sports Medicine

CONTENTS

VOLUME 26 • NUMBER 3 • JULY 2007

Foreword

xiii

Mark D. Miller

Preface

xv

James R. Borchers and Thomas M. Best

Exercise and the Immune System

311

P. Gunnar Brolinson and Dan Elliott

Exercise has a variable effect on the immune system. The underlying reasons for this variability are multifactorial and include infectious, neuroendocrine, and metabolic factors, with nutritional status of the athlete and the training load playing a role. Environmental factors such as living quarters, travel requirements, and the type of sport (team versus individual) also contribute to infectious risk. Regarding the direct effect of exercise on the immune system, moderate exercise seems to exert a protective effect, whereas repeated bouts of strenuous exercise can result in immune dysfunction. Understanding the relationship between exercise and infectious disease has important potential implications for public health and for clinicians caring for athletes and athletic teams.

Prevention of Infectious Diseases in Athletes

321

Anthony Luke and Pierre d'Hemecourt

The sports medicine physician may face challenging issues regarding infectious diseases when dealing with teams or highly competitive athletes who have difficulties taking time off to recover. One must treat the individual sick athlete and take the necessary precautions to contain the spread of communicable disease to the surrounding team, staff, relatives, and other contacts. This article reviews preventive strategies for infectious disease in athletes, including immunization recommendations and prophylaxis guidelines, improvements in personal hygiene and prevention of spread of infectious organisms by direct contact, insect-borne disease precautions, and prevention of sexually transmitted diseases. A special emphasis on immunizations focuses on pertussis, influenza, and meningococcal prophylaxis.

Upper Respiratory Tract Infections in Athletes

345

Clifton L. Page and Jason J. Diehl

Upper respiratory tract infections (URTIs) represent the most common acute illnesses in the general population and account for the leading acute diagnoses in the outpatient setting. Given the athlete's expectation to

return to activity as soon as possible, the sports medicine physician should be able to accurately diagnose and aggressively treat these illnesses. This article discusses the common pathogens, diagnosis, treatment options, and return-to-play decisions for URTIs, with a focus on the common cold, sinusitis, pharyngitis, and infectious mononucleosis in the athlete.

Pulmonary and Cardiac Infections in Athletes

Roger J. Kruse and Cathy L. Cantor

361

Pulmonary and cardiac infections in the athlete can have a wide range of presentations and complications. These infections may present few problems for the training athlete or become life threatening. The team physician must be able to make an accurate diagnosis, give the appropriate treatment, understand the potential complications, and ensure proper follow-up and return-to-play protocols.

Bacterial Dermatoses in Sports

Peter E. Sedgwick, William W. Dexter, and Christina T. Smith

383

Bacterial skin dermatoses are common in athletes, and it is the role of team physicians to be able to recognize and treat such problems. Despite the skin's role as an efficient barrier, a moist environment coupled with frequent skin trauma and contact by athletes with equipment and other players predispose to acquiring infections. In the past 10 years, there has been a dramatic rise in methicillin-resistant *Staphylococcus aureus* (MRSA) infections. This article discusses community-acquired MRSA infections among athletes and focuses on the recognition of, management of, and return-to-play guidelines for common bacterial skin infections in athletes. Some of the more unusual bacterial infections that may present in this population are also reviewed.

Cutaneous Fungal and Viral Infections in Athletes

Michael D. Pleacher and William W. Dexter

397

Fungal and viral cutaneous infections are common among athletes and can develop quickly into widespread outbreaks. To prevent such outbreaks, the team physician must be familiar with common cutaneous infections including tinea corporis, tinea capitis, tinea pedis, herpes simplex, molluscum contagiosum, and human papillomaviruses. Appropriate treatment and management of these infections allows the athlete to safely return to play and safeguards teammates and opponents against the spread of these diseases.

HIV and the Athlete

Kelley L. Clem and James Borchers

413

HIV/AIDS is considered a worldwide pandemic, with continued increases in the number of newly diagnosed cases and persons living long-term with the disease. Athletes may be at risk of infection based

on behaviors associated with participation in their sport and away from competition. The sports medicine physician must be aware of the risk of HIV/AIDS in the athlete, diagnosis and treatment options, the effect of HIV/AIDS on exercise, and strategies for prevention of HIV/AIDS in athletic competition.

Blood-Borne Infections

425

Jason J. Pirozzolo and Donald C. LeMay

Blood-borne infections are transmitted by way of direct blood contact from one individual to another from injured skin or a mucous membrane. Blood-borne infections can also be transmitted through blood doping and drug abuse and through sexual contact. Risk factors for hepatitis B virus (HBV) HBV infection include travel to regions with endemic hepatitis. Prevention of blood-borne pathogens in the student-athlete should focus on traditional transmission routes and off-the-field behavior because experts believe that field transmission of blood-borne pathogens is minimal. Worldwide, HBV, hepatitis C virus (HCV), and HIV are the most common pathogens encountered. This article focuses on HBV and HCV as being the most prevalent in athletics.

Gastrointestinal Infections in the Athlete

433

Steven J. Karageanes

Gastrointestinal (GI) infections can be troublesome and debilitating to athletes and difficult to manage for sports medicine physicians. A clinician should obtain a comprehensive medical history of the athlete whenever symptoms of the GI tract appear. The predominant chief complaint in GI infections is diarrhea. Athletes may need a comprehensive physical examination to appropriately diagnose the ailment and to determine the need for more aggressive treatment. Multiple laboratory tests exist to aid in diagnosing the infectious pathogen causing gastroenteritis. This article discusses GI infections caused by viral, parasitic, bacterial, and food-borne infectious pathogens. The epidemiology, pathogenesis, history, symptoms, mode of transmission, laboratory detection, treatment, and prevention of these infections are reviewed.

Infectious Disease and the Collegiate Athlete

449

Robert G. Hosey and Richard E. Rodenberg

Collegiate athletes are common reservoirs for infectious disease agents. Specific training regimens, living arrangements, and high-risk behaviors may influence the athlete's risk of contracting a variety of infectious diseases. The sports medicine physician plays an important role in recognizing, appropriately treating, designing prevention strategies for, and making return-to-activity decisions for athletes who have infectious diseases.

Infectious Disease and the Extreme Sport Athlete **473**

Craig C. Young, Mark W. Niedfeldt, Laura M. Gottschlich,
Charles S. Peterson, and Matthew R. Gammons

Extreme sport competition often takes place in locations that may harbor atypical diseases. This article discusses infections that may be more likely to occur in the extreme sport athlete, such as selected parasitic infections, marine infections, freshwater-borne diseases, tick-borne disease, and zoonoses. Epidemiology, presentation, treatment, complications, and return-to-sport issues are discussed for each of these diseases.

Travel Medicine and the International Athlete **489**

Joel M. Kary and Mark Lavallee

International travel for athletic competition presents unique challenges for athletes and medical staff. This article provides strategies for all phases of an international trip, including travel preparation, travel, competition, and post competition. Adequate planning should encompass the needs of all members of the traveling team (athletes and nonathletes), proper documentation and licensure, emergency planning, venue set-up, and appropriate medical supplies and equipment.

Index **505**