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Evidence-Based Management of Sport Competitions during COVID-19 Pandemic

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Abstract

In this current review paper, reactions of sports world during COVID -19 pandemic are reported and discussed in the light of available evidence-based medicine. Issues related to mass gathering in sports events, as well as athlete's health promotion during epidemics, are discussed. Pandemic is definitively a physical, emotional and social challenge and sport has reacted in the right and healthy way. This troublesome time has led to additional knowledge in managing sports events and even more will need to be collected throughout pandemic evolution until the end and afterwards.

Introduction

Coronavirus disease 2019 (COVID-19) pandemic produced significant consequences on sports world, which, in turn, influenced social awareness of the disease, as well as individual and political reactions and choices. Due to the concern about the possibility of contagion among athletes and spectators during competitions, professional and recreational sport was stopped. Based on available scientific evidence, the rational for evidence-based management of sport competitions is here reported and discussed, focusing on the health of athletes, spectators and of general population.

Outbreak of COVID-19 Pandemic

On December 30th 2019, China declared the outbreak of severe acute respiratory syndrome caused by a novel coronavirus (SARS-CoV2), with extremely active contagious potential and lethal consequences. On January 30th 2020, WHO announced the COVID-19 epidemic a public health emergency of international concern. A second COVID-19 outbreak was reported in northern Italy on February 20th 2020, and subsequently the communicable and highly contagious disease spread worldwide with cases identified in at least 67 countries across six continents [1]. On March 11th 2020, WHO declared COVID-19 118.000 cases in 114 countries, 4.291 people lost their lives, thousands more are fighting for their lives in hospitals, thus it could be characterized as pandemic.

Consequences of Pandemic in Sports Events

It was immediately clear was that sport world would have been largely influenced by pandemic and that it would, in return, largely influence the emotional and practical reaction to such a threatening disease. At that point, there were actually no real experts, since nobody ever faced this deadly event and scientific reports on communicable disease were scarce and non-entirely resembling COVID-19. Although "history is not a predictive science", since numerous well documented and vast differences between society and public health exist between previous and actual pandemic, a valuable contribution in terms of previous experience came from the results of nonpharmaceutical interventions implemented by 43 US cities during the 1918-1919 influenza [2]. Such interventions, implemented by 43 US cities, were 1. Isolation of ill persons and quarantine of those suspected and having contact with ill persons; 2. School closure;

3. Cancellation of public gatherings. Indoor, but not outdoor sport events were all cancelled. Such measures played a salubrious role in delaying the temporal effect of pandemic, however, the question related to the opportunity of maintaining or cancelling outdoor sports events remained opened at that time.

Sports events are examples of mass gathering, characterized by high concentration of people at a specific time and location. In mass gathering, respiratory tract infections are the leading cause of infectious diseases, with human rhinovirus, human coronavirus and influenza A virus being the most common pathogens. Since social distancing and contact avoidance are difficult measures to implement in such context, individual preventive measures including vaccination, use of face mask, disposable handkerchief and hand hygiene may be recommended. Nevertheless, since the effectiveness of these measures in sports events, such as football games and Olympic Games has never been deeply investigated, in a serious pandemic, such as COVID-19, it appeared safer to initially play in stadiums closed to spectators (figure 1) and, then, cancel the competition and reschedule them later in time [3].

Interesting data are provided by IOC study that reported incidence of respiratory infections in elite athletes being 2% during Vancouver 2010 and 4% during Sochi 2014 Winter Games. However, these data were based on voluntary reporting by team physicians, who may not be properly informed by the team. In a prospective observational study performed in team Finland during 2018 Winter Olympic Games in PyeongChang, common cold was reported and tested in 45% of élite athletes and 32% of staff members. In this study population, coronaviruses were the most common causative agents [4].

During the 2000 Sydney Olympic Games, planners assessed various hazards, including that of the spread of the measles, thus, to manage this risk, they attempted to increase immunisation levels among participant in the Games and initiated enhanced surveillance to identify suspected cases. Communicable diseases have not been a significant cause of health problems during recent international sports events implying mass gathering. In fact, during 1996 Atlanta Olympic Games and 2000 Sydney Olympic Games, infectious disease accounted for less that 1% of health care visits. However, as other mass gathering, sports events pose ideal circumstances for the spread of infectious diseases, such as novovirus outbreak during the 2006 Football World Cup, and, therefore, improved communicable disease detection through epidemiological surveillance may be required.

Athletes Health during Epidemic Outbreaks

In stopping professional and even recreational sports organized activities and competitions, health and political authorities took into consideration athletes' health, since they had additional and specific risk of contagion. In fact, droplets as well as body fluids such as sweat, and the contact with infected surfaces can transmit coronavirus. Thus, participation in sports training and competition implies the risk of contagion in the changing room because of infected surfaces, aerosolised viral particles in the dense steam and vapour of hot showers, sharing drinks, food, sporting equipment. During training and competition, athletes might risk infection due to close personal contact, particularly in team and contact sports. Furthermore, frequent travels to reach site of competition produce additional risk to athletes' health in time of pandemic.

To such generic, although increased, risk of contagion in sports environment, athletes need to account also to an increase risk of upper respiratory tract infections due to compromised immunity due to athletic training and environmental stress [5].

The Lesson of COVID-19 Pandemic

Despite WHO gave a general alert of possible future pandemic and suggested to prepare health systems and government to face it, when it stoke the world was largely unprepared. Individual Nations reactions were not uniform, but sport world reacted in univocal direction: protecting athletes' health and avoiding COVID-19 to spread. Closure of professional and recreational sports competitions and training was mandatory all over the world, since it was considered the best measure to limit spreading of contagion. From unexpected and deadly COVID-19 pandemic we have learned that communicable diseases are not definitively eliminated and that we can still be called to fight them.

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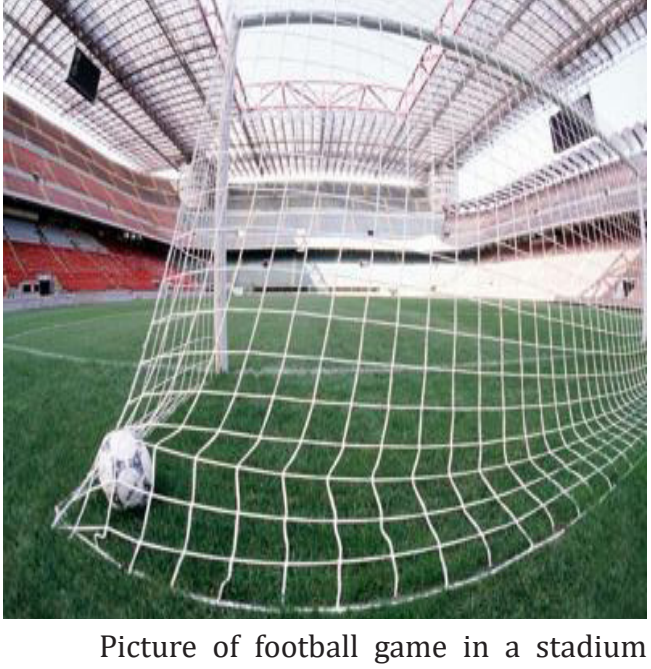
Therefore, it is crucial to be prepared with preventive measure on one site and with detailed protocols to limit spreading when unfortunately the disease strikes. We have learned the sports world has a rapid and appropriate reaction, in the direction of mitigating spreading of infection and saving lives. Economic consequences of such choices were considered secondary to the possible deadly impact on athletes, spectators and public health. Since epidemic stroke China and northern Italy first, containment measures even in sport were managed nationally and even regionally. International coordination and management is advisable even in the initial phase of pandemic, since sport competitions are international in their nature. At the time of COVID-19 outbreak, scientific evidence on optimal management of sport events and practise was scarce; it is conceivable that more evidence will be available from now on. Since this pandemic was unexpected and data limited, mass media communication gave documented, although fragmentary information, with the awareness that sports amplifies people perception of events, even of such a health and economic crisis. Pandemic is definitively a physical, emotional and social challenge and sport has reacted in the right and healthy way.

Figure 1.



Picture of football game in a stadium closed to spectators during COVID 2019 pandemic.

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