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Awareness and Attitudes to Cardiopulmonary Resuscitation Among Footballers; a Survey in Turkey

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Abstract

Introduction: Sudden cardiac arrest (SCA) may also affect people making regularly sports with no known heart disease. Coronary atherosclerosis is the most common cause of sudden death in individuals older than 35 years, whereas inherited and structural heart disease predominates in younger athletes. Immediate cardiopulmonary resuscitation and early defibrillation is the treatment of choice for SCA. High success rates can be achieved if this is initiated promptly. The purpose of this study is to determine the awareness and attitudes of football players regarding cardiopulmonary resuscitation (CPR).

Method: In the 2014-2015 football seasons, football players of professional league in the Aegean region in Turkey were enrolled. A 16-question survey was given to 259 football players. Topics such as previous CPR training and concerns related to CPR were questioned.

Results: Fully completed forms of 259 footballers were evaluated. There were 7.7% who stated they had received training in CPR with certificate. 5.9% of them had CPR training within 5 years. The rate who stated they wished to receive this training was 46.3%. The rate who had witnessed SCA during a game was 3.5% and during workout was 3.1%. About one percent of football players (1.2%) stated that they had to perform CPR once. Of participants 17% had never heard of an AED. While 10.4% stated there was a written medical action plan (MAP) for emergency situations in their home stadium, 62.9% were not aware of a plan.

Conclusion: Training in CPR and automated external defibrillators among football players is lacking. However, footballers as first responders can be helpful on the field as well as anywhere in the community. The majority of participants stated they were willing to correct and develop their knowledge related to CPR. These results should give warning to authorities to develop a strategy to improve CPR knowledge of football players.

Keywords: Football player; Sudden cardiac arrest; Arena

Introduction

Football is a globally popular team sport for men, women and children [1]. There are more than 265 million registered players worldwide with a few hundred professional players and more than 200 national football associations. Football receives excessive media interest [2]. The sport with the most licensed players in Turkey is football with approximately 466,000 individuals [3].

The dynamic nature of football makes it similar to swimming, tennis, basketball and other sports in which athletes carry a risk of sudden cardiac death (SCD). Sudden cardiac death is defined as a sportsperson/exercising individual with no known health problems in the previous 6 hours who suddenly dies within 1 hour of onset of symptoms with no trauma during/after exercise [4,5]. The true incidence of SCD among footballers is not known [6]. However, prospective research has reported the incidence of SCD among athletes as 2.3/100,000 per year, with 2.1/100,000 cases related to cardiovascular system (CVS)-related causes [7]. In an American case series of 486 patients from 2000-2006, a rate of 11% SCD was reported in young people following exercise [8]. In a variety of countries, the death rates associated with football are especially high. Some of these include a football-related incidence of 13% of 820 sports-related deaths in France [9], 9.7% of 176 deaths in Germany [10], 21.3% of 61 deaths in Spain [11] 41.8% of 55 deaths in Italy [12] and 55.8% of 1866 deaths [13] in America.

Of sudden cardiac death cases, 90% have dominant rhythm ventricular fibrillation (VF). Defibrillation is an important link in the life-saving chain and is known to resolve the results of cardiac arrest linked to VF/VT. The possibility of successful defibrillation reduces over time; as a result, early defibrillation is one of the most important factors in survival after cardiac arrest. In situations without a CPR administrator, mortality increases by 10-12% with each minute between collapse and defibrillation. Shortening the duration between the onset of VF/VT and administration of shock increases the probability of successful defibrillation and survival [14]. Early defibrillation is possible by delivering the defibrillator to the incident

site in the shortest time. As a result, it is important that an automatic external defibrillator (AED), which is appropriate for use by people who are not health personnel due to audible instructions, is located in places with a high possibility of sudden cardiac death.

The aim of this study is to determine the awareness and attitudes of football players regarding cardiopulmonary resuscitation. Our secondary aim was to gain information about the current situation regarding the effective use of health equipment.

Methods

This study was completed after receiving permission from the Dokuz Eylül University Noninvasive Ethics Committee (Date 27/02/2014, Decision no: 2014/08-02).

In the 2014-2015 football seasons, football players of professional league in the Aegean region in Turkey were enrolled. A 16-question survey was handed out to 259 football players. Topics such as previous CPR training and concerns related to CPR were questioned. The existences of a medical action plan (MAP), the presence of an ambulance during a match or workout, the level of emergency medical training of club personnel, the availability of AEDs in the arena and the mean time to reach the nearest hospital were surveyed.

Statistical analysis

Statistical analysis used the Statistical Package for the Social Sciences (SPSS) 15.0 for Windows (SPSS Inc., Chicago, IL, USA). Frequency variables are shown as frequency (n) and percentage (%). Continuous variables are given as the mean plus-minus standard deviation (mean ± SD). The chi-square test was used to compare frequency values. A p value less than 0.05 indicated a significant difference.

Results

Of 13 clubs, 259 footballers were included in the study. The mean age of the participants was 23.58 ± 4.04 years.

There were 7.7% who stated they had received training in CPR with certificate, 5.9% of them had their training within 5 years. The rate who wished to receive this training was 46.3%. This certificate Turkey Football Federation of the field 1 (0.4%), the area of the Ministry of Health course 6 (2.3%), the area of the private basic life support training centers, 5 (1.9%), indicating that the people and from other places 7 (2.7%) were found to be the person.The rate who had witnessed SCA during a game was 3.5% and during workout was 3.1%. About one percent of football players (1.2%) stated that they had to perform CPR once.

Of participants 17% had never heard of an AED. While 10.4% stated there was a written medical action plan (MAP) for emergency situations in their home stadium, 62.9% were not aware of a plan (Table 1). Of participants 93.47% had known distance to nearest hospital. Other results were showed among football players in the Table 1.

	1. League n (%)	2. League n (%)	3. League n (%)	p value
Who does first BLS?				
Masseur	53 (35.1)	136 (56.4)	97 (68.8)	<0.001
Doctor	50 (33.1)	75 (31.1)	36 (25.5)	
Physiotherapist	42 (27.8)	19 (7.9)	3 (2.1)	
Medical officer	1 (0.7)	8 (3.3)	3 (2.1)	
Coach	5 (3.3)	1 (0.4)	2 (1.4)	
Paramedic	0 (0)	2 (0.8)	0 (0)	
Availability				
MAP	4 (6.3)	13 (10.7)	10 (13.7)	0.456
Ambulance	64 (100)	114 (94.2)	68 (91.9)	0.281
AED on the field	6 (9.5)	4 (3.3)	1 (1.4)	0.083
Where is the ambulance?				
Near to the field, at the emergency exit	52 (81.3)	106 (87.6)	63 (86.3)	0.859
Outside the arena	3 (4.7)	3 (2.5)	3 (4.1)	
At the arena gate	3 (4.7)	4 (3.3)	1 (1.4)	
Do not know	6 (9.4)	8 (6.6)	6 (8.2)	
What is the AED?				
I don't know	7 (8.8)	20 (12.2)	17 (18.3)	0.946

I know but I didn't see before	24 (30.0)	46 (28.0)	25 (26.9)
It supports ventilation	3 (3.8)	7 (4.3)	3 (3.2)
It restarts the heart	34 (42.5)	70 (42.7)	37 (39.8)
Only a doctor is allowed to use it	6 (7.5)	11 (6.7)	6 (6.5)
If trained, everybody may use it	6 (7.5)	10 (6.1)	5 (5.4)

Table 1: Awareness among football players.

Discussion

In our study, 259 included footballers. There were 7.7% who stated they had received training in CPR with certificate. The rate who wished to receive this training was 46.3%. While 10.4% stated there was a written medical action plan (MAP) for emergency situations in their home stadium, 62.9% were not aware of a plan.

Sudden cardiac arrest (SCA) is the leading cause of death in football players during exercise [1]. Many young and healthy, even famous footballers, such as Miklós Fehér, Marc-Vivien Foe, Daniel Jarque and Antonio Puerta, have tragically lost their lives due to collapse and SCA. Underlying, undiagnosed cardiac diseases may be induced by exercise and may cause SCA [2]. Just as previously known diagnosed heart diseases may cause sudden death, undiagnosed heart disease may also be a cause. The most frequent causes of SCD in individuals below 35 years of age are cardiac pathologies, such as hypertrophic cardiomyopathies (36%) and coronary anomalies (17%). These are followed by myocarditis, arrhythmogenic right ventricle cardiomyopathy, primary electrical heart diseases, heart valve diseases, aorta rupture and systemic diseases with incidences varying from 1-6%. Substance abuse may be among the causes of SCD with unknown incidence [15]. The majority of SCD incidents above the age of 35 are linked to atherosclerotic coronary disease [16]. In a study evaluating the autopsy results of 15 male players who experienced sudden death, Özdemir et al. [16] identified the cause of sudden death to be coronary artery disease in 11 cases as a result of post-mortem microscopic and macroscopic investigations.

Immediate cardiopulmonary resuscitation (CPR) and early defibrillation is lifesaving [18]. In football arenas, it is necessary to have a medical action plan (MAP) including an automatic external defibrillator (AED) and CPR-trained personnel ready to act during a match and during daily training.

Additionally, there are very limited studies on this topic in the English literature. Schmied et al. completed a survey study of international FIFA member associations [19]. The primary aim of this study was to determine the incidence of SCA, SCD and unexpected sports-related deaths in the last 10 years. The study had secondary and tertiary aims of determining health screening strategies for footballers and resuscitation strategies for SCA incidents. The results of the study included 126 responses from 170 FIFA member associations. Additionally, only 103 surveys were fully evaluated. Of the associations surveyed, 49.5% reported no cardiac incidents during this period, whereas 50.5% reported 107 SCA/SCD cases occurring on the football field and 5 sudden death cases considered to be related to football. Of these cases, the mean age was 24.9 years, whereas 79.5% of cardiac events resulted in death and only 20.5% of footballers survived. Of a total of 112 cases, 95 had known resuscitation information with 52.2% of cases surviving after intervention with AED at the incident site. Of these cases, 43.5% died in spite of AED use on the field. Nine cases survived without AED use on the field; however, as no clear information was reported, intervention with a defibrillator by an ambulance team is debatable [19].

FIFA member associations have developed strategies to prevent SCD. Schmied et al. reported regular cardiac screening for national teams (85.4%), and 66 FIFA member associations additionally screen the teams in their national leagues (64.1%) [19]. In addition to cardiac arrest prevention strategies, these organizations also created "BLS strategies". An AED is regularly available at official matches in 68% of FIFA member associations, with only 35% of FIFA member associations requesting an AED during both matches and training sessions. Financial resources and educational deficiencies were noted as the primary obstacles to implementing AED programmes. An official 'medical action plan' for medical emergencies on the field is mandatory in 66 (64.1%) FIFA member associations that answered the questionnaire. Sixty-one associations (59.2%) mandate an annual simulation practice session by medical and team staff. Fifty-seven FIFA member associations provide regular BLS courses (55.3%).

Another study [20] evaluated emergency preparations for cardiovascular events and current conditions to determine whether there was a cardiovascular safety program, the incidence of sudden cardiac arrest, the presence of automatic external defibrillator and transport time, and the presence of medical action plan for emergencies at 190 top-level European football clubs in 10 countries. This study reported that 72% of club stadiums had an AED, and 64% had a medical action plan. In club stadiums, 90% had a doctor, 37% had a nurse and 58% had paramedics on duty. Of the clubs studied, 65% had basic CPR training and 26% had advanced CPR programmes.

The current guidelines for medical services at Fédération Internationale de Football Association (FIFA) competitions require a defibrillator at the sideline. Emergency preparedness for SCA in spectators, especially in large football arenas, must also be considered [20]. However, Borjesson et al. surprisingly showed in research findings that cardiovascular safety programmes at European arenas were insufficient. Of the study participants, 28% had no AEDs in their own arenas, and 25% could not provide information on the use of the current AED. There was no written MAP in 36% of arenas [20]. Borjesson et al. [20] showed that at important and large football stadiums, there were insufficiencies in presence of external defibrillators and written action plans in addition to basic cardiopulmonary resuscitation training and debated what was necessary to correct this critical situation at sports arenas.

There is still no law requiring the presence of an AED in arenas in Turkey. As a result, AEDs are present at only 5.2% of arenas [21]. However, this topic came to the agenda in 2016. The decision was

made to create legislation requiring AEDs in arenas by forming an emergency consensus among officials, and the related official process was begun. Although having a MAP is very important, it is also important that the applicability of the plan be ensured and that everyone in the arena such as club officials, coaches and players are aware of the MAP. SCD is a tragic and preventable potential situation in athletes [22]. On the football field, personnel trained and prepared to provide health services are necessary [23]. Regular health examinations of athletes using certain protocols, provision of necessary training for CPR, expansion of practical applied training programmes on the use of AED, and information on first and emergency aid provided to anyone with direct interest from referees to athletes are all significant live-saving measures. Early initiation of CPR by witnesses increases survival after cardiac arrest. In our country it is rare that BLS is begun by lay person [24].

The recommendations in the new 2015 ERC guidelines [18] "cardiac arrest during sports activities" are: sudden and unexpected collapse not related to trauma or contact may be due to cardiac sourced discomfort of an athlete in the playing area and if accidentally experienced requires rapid diagnosis and effective treatment. Arenas are areas with thousands of spectators and many media workers. If there is no rapid response to treatment, and if there is a medical team prepared, consider moving the patient from the area with media and spectators. If the patient has ventricular fibrillation or pulse-less ventricular tachycardia, moving them should be postponed until after the first three defibrillation attempts. If there is no medical team or defibrillator during an informal race or training, aid should be called for the collapsed referee, athlete or their friends, and resuscitation should begin immediately. BLS should "continue until professional aid for advanced life support arrives".

In conclusion, our study included awareness and attitudes to cardiopulmonary resuscitation among footballers. It was determined awareness that cardiovascular safety programs, the presence of an automatic external defibrillator, the presence of medical action plan for emergencies and CPR training are very insufficient in the professional league in the Aegean region in Turkey.

References

1. Fuller CW, Junge A, Dvorak J (2012) Risk management: FIFA's approach for protecting the health of football players. Br J Sports Med 46: 11-17.
2. Bohm P, Kästner A, Meyer T (2013) Sudden cardiac death in football. J Sports Sci 31: 1451-1459.
3. Turkey Football Federation.
4. Chugh SS, Jui J, Gunson K, Stecker EC, John BT, et al. (2004) Current burden of sudden cardiac death: multiple source surveillance versus retrospective death certificate-based review in a large U.S. community. J Am Coll Cardiol 44: 1268-1275.
5. Holst AG, Winkel BG, Theilade J, Kristensen IB, Thomsen JL, et al. (2010) Incidence and etiology of sports-related sudden cardiac death in Denmark – implications for preparticipation screening. Heart Rhythm 7: 1365-1371.
6. Bille K, Figueiras D, Schamasch P, Kappenberger L, Brenner JI, et al. (2006) Sudden cardiac death in athletes: the Lausanne Recommendations. Eur J Cardiovasc Prev Rehabil 13: 859-875.
7. Corrado D, Pelliccia A, Bjornstad HH, Vanhees L, Biff A, et al. (2005) Cardiovascular preparticipation screening of young competitive athletes for prevention of sudden death: proposal for a common European protocol. Consensus Statement of the Study Group of Sport Cardiology of the Working Group of Cardiac Rehabilitation and Physiology and the Working Group of Myocardial and Pericardial Diseases of the European Society of Cardiology. Eur Heart J 26: 516-524.
8. Drezner JA, Chun JS, Harmon KG, Derminer L (2008) Survival trends in the United States following exercise-related sudden cardiac arrest in the youth: 2000-2006. Heart Rhythm 5: 794-799.
9. Marijon E, Tafflet M, Celermajer DS, Dumas F, Perier MC, et al. (2011) Sports-related sudden death in the general population. Circulation 124: 672-681.
10. Turk EE, Riedel A, Püeschel K (2008) Natural and traumatic sports-related fatalities: a 10-year retrospective study. Br J Sports Med 42: 604-608.
11. Suárez-Mier MP, Aguilera B (2002) Causes of sudden death during sports activities in Spain. Rev Esp Cardiol 55: 347-358.
12. Corrado D, Basso C, Rizzoli G, Schiavon M, Thiene G (2003) Does sports activity enhance the risk of sudden death in adolescents and young adults? J Am Coll Cardiol 42: 1959-1963.
13. Maron BJ, Doerer JJ, Haas TS, Tierney DM, Mueller FO (2009). Sudden deaths in young competitive athletes: analysis of 1866 deaths in the United States, 1980–2006. Circulation 119: 1085–1092.
14. Nolan JP, Soar J, Zideman DA, Biarent D, Bossaert LL, et al. (2010) European Resuscitation Council Guidelines for Resuscitation 2010 Section 1. Executive summary. Resuscitation 81: 1219-1276.
15. Sheppard MN (2012) Aetiology of sudden cardiac death in sport: a histopathologist's perspective. Br J Sports Med 46: i15-i21.
16. Thiene G (2009) Football stadium defi brillators for cardiac arrest. Eur Heart J 30: 743-749.
17. Ozdemir C, Saka T, Asil H, Uzün I, Oner M (2008) Soccer related sudden deaths in Turkey. J Sports Sci Med 7: 292-298.
18. Perkins GD, Handley AJ, Koster RW, Castrén M, Smyth MA, et al. (2015) European Resuscitation Council Guidelines for Resuscitation 2015: Section 2. Adult basic life support and automated external defibrillation. Adult basic life support and automated external defibrillation section Collaborators. Resuscitation 95: 81-99.
19. Schmied C, Drezner J, Kramer E, Dvorak J (2013) Cardiac events in football and strategies for first-responder treatment on the field. Br J Sports Med 47: 1175-1178.
20. Borjesson M, Dugmore D, Mellwig KP, Frank van B, Serratosa L, et al. (2010) Time for action regarding cardiovascular emergency care at sports arenas: a lesson from the Arena study. European Heart Journal 31: 1438-1441.
21. Ozbilgin S, Kuvaki B, Hanci V, Ungur G, Tutuncu O, et al. (2015) Preparedness for sudden cardiac arrest at sports arenas: a survey in Turkey. Resuscitation 96: 143-144.
22. Patel V, Elliott P (2012) Sudden death in athletes. Clin Med (Lond) 12: 253-256.
23. Kramer EB, Botha M, Drezner J, Abdelrahman Y, Dvorak J (2012) Practical management of sudden cardiac arrest on the football field. Br J Sports Med 46: 1094-1096.
24. Özbilgin S, Akan M, Hancı, Aygün C, Kuvaki B (2015) Evaluation of Public Awareness, Knowledge and Attitudes about Cardiopulmonary Resuscitation: Report of İzmir. Turk J Anaesthesiol Reanim 43: 396-405.