Analysis of the *YouTube* videos on basic life support and cardiopulmonary resuscitation

Análise de vídeos do YouTube *sobre suporte básico de vida e reanimação cardiopulmonar*

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A B S T R A C T

Objective: *To analyze the videos on the You Tube video sharing site, noting which points addressed in the videos related to CPR and BLS, based on the 2010 Guidelines for the American Heart Association (AHA).* ***Methods:*** *This was an exploratory, quantitative and qualitative research performed in the Youtube sharing site, using as keywords the expressions in Portuguese equivalent to the Medical Subject Headings (MeSH) "Cardiopulmonary Resuscitation" and "Basic Life Support" for videos that focused on the basic life support.* ***Results:*** *The research totaled 260 videos over the two searches. Following the exclusion criteria, 61 videos remained. These mostly are posted by individuals and belong to the category Education. Moreover, most of the videos, despite being added to the site after the publication of the 2010 AHA Guidelines, were under the older 2005 guidelines.* ***Conclusion:*** *Although the video-sharing site Youtube is widely used today, it lacks videos about CPR and BLS that comply to the most recent AHA recommendations, which may negatively influence the population that uses it.*

Key words: *Audiovisual aids. Instructional films and videos. Cardiopulmonary resuscitation. Diagnostic techniques and procedures. Emergencies.*

INTRODUCTION

Cardiopulmonary arrest (CPA) includes a dramatic situation characterized by the interruption of the effective respiratory and circulatory activities, responsible for high morbidity and mortality, even in situations of ideal care[1].

The occurrence of CPA is more common in the prehospital than in the hospital, and about 50% of patients with acute myocardial infarction do not get to the hospital alive.

The rate of survival after a cardiac arrest ranges from two to 49%, and depends on the initial cardiac rhythm and the onset of early resuscitation. It is known that the survival rate can double and even triple when cardiopulmonary resuscitation (CPR) is performed with high quality[2]. Time is an important variable in CPA; it is estimated that every minute that the individual remains in CPA, 10% chance of survival is lost [1].

Considering this situation, since 2008 the Brazilian Ministry of Health offers training in Basic Life Support (BLS) for the professionals of the Service of Mobile Emergency Care (SAMU-192). Through this training, they are expected to promote an effective CPR.

Moreover, it is also necessary that the lay people receive training in BLS for early treatment of a cardiac arrest situation, collaborating with a significant reduction in deaths outside the hospital environment, with increased survival and decreased sequelae[3].

It is noteworthy that a quality CPR requires theoretical knowledge and skill, which is essential for the survival of patients with imminent risk of sudden death. Thus, the proper use of knowledge and ability to perform CPR by health professionals or lay people are related to the reduction of mortality and morbidity of sudden cardiac arrest victims [4].

From this perspective, the use of resources such as lectures and videos on CPR does not improve psychomotor ability to perform high-quality CPR, but increases cognitive ability, or knowledge. Classes and videos can therefore produce good quality CPR, providing a possible improvement in survival of CPA victims in and out of hospital [4].

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It is known that many people use the YouTube site to seek knowledge about health problems. In this context, we ask: what do the videos on CPR and BLS portray in the YouTube sharing site? Are they in agreement with the highlights of the Guidelines of the American Heart Association (AHA) in 2010 for CPR and emergency cardiovascular care (ECA)?

The objective of this research, considering the relevance of the subject, and especially the need for constant updating in the area, is to analyze the videos on the YouTube sharing site, carefully watching the points covered in the videos relating to CPR and BLS, based on 2010 AHA Guidelines.

METHODS

We conducted an exploratory type research, with a quantitative approach, performed in the YouTube video-sharing site, whose virtual address is: www.youtube.com. Despite the existence of other video sharing sites, the choice of YouTube was made because this is currently the most widespread among internet users.

Initially, we performed a search on YouTube using as keywords the expressions in Portuguese equivalent to the Medical Subject Headings (MeSH – in Portuguese, "DeCS") "Cardiopulmonary Resuscitation" and "Basic Life Support" for videos that were focused on the basic life support.

It is noteworthy that, according to the Virtual Health Library (VHL), through DeCS, cardiopulmonary resuscitation and basic life support denote the artificial substitution of heart and lung action as indicated for cardiac arrest resulting from electric shock, drowning, respiratory arrest or other causes. These descriptors, therefore, indicate the human action in maintaining blood circulation and ventilation in victims of cardiac arrest, an aspect that was looked for in the analysis of videos.

We defined as inclusion criteria: length of the video less than four minutes, as ranked by the site; Portuguese language videos (no restrictions with regard to the subject of production or the type of language used, verbal or nonverbal); direct reference CPR; and date of posting from November 1st, 2010 till November 10th, 2011 (one year after the release of the new resuscitation guidelines of the AHA), considering the amount of video stored on the site and the continuous addition of videos.

Exclusion criteria adopted were: no match with the subject studied and/or no answer to the main question. Duplicate videos were also excluded.

The survey was conducted through visits to the site, which occurred without defined location, since there is no restriction to access to the videos from different locations, as happens with some search portals. Thus, it was possible to make several required visits, at different times, for the observation and analysis of videos in an organized and peaceful way.

After this phase, the videos undergone a screening, according to the inclusion criteria, from the titles and descriptions that each one receives when posted on the site.

Once performed the selection of videos, collection of data started. To this end, we watched one by one and extracted information such as: timing, author (individual, corporation or organization) and video content through careful observation, focusing on which issues related to the CPR 2010 Guidelines of the AHA were addressed.

As control variables of the study, there are the sequences C, A, B, D for victims of cardiac diseases, starting with the BLS sequence: C (minimum of 100 quick and effective compressions per minute), A (open airways), B (ventilation) and finally D (early defibrillation), with ratio of 30 chest compressions to two ventilations [5].

Data were tabulated, grouped and analyzed to establish the profile of quality of the videos on CPR and BLS stored on YouTube website.

The approval of the ethics committee was not required, since the research is not directly involved with human beings, using public domain material.

RESULTS

A summary of data regarding the findings through the search of the videos on YouTube website is shown in table 1.

The search on the site totaled 260 videos. We selected 61videos (table 1), which were analyzed taking into account the purpose of the study.

It was noticed that all videos are current. These are posted mostly by individuals, as any person who has an account on the site can post videos. But there are also videos posted by corporations and non-governmental organizations (NGOs) (Table 2).

We also addressed the category in which the videos were located at the site (Figures 1 and 2). It was then observed that 90% of the videos belonged to the category Education.

Table 3 depicts the major errors found in the videos analyzed, considering the two descriptors.

Table 4 depicts a summary of the main appropriate conducts emphasized in the videos analyzed, according to the descriptors.

DISCUSSION

By carefully analyzing some points related to CPR based on the 2010 AHA Guidelines treated on the videos, it was observed that most of the videos, despite being added

to the site after the publication of this guiding document, were following the old guidelines, from 2005.

Thus, the sequence C, A, B, D for care of victims of cardiac disorders was not observed. In these videos, the CPR maneuvers were initiated by two rescue breaths, a certain video still referring to the initiation of CPR with four breaths.

Another point observed is that some videos depict CPR maneuvers being carried out with approximately 100 compressions per minute. However, according to the new Guidelines, the chest compression should have a frequency of at least 100 per minute [5].

Other videos show the importance of proper recognition of the CPA and reveal the improvement in patient survival rates. Thus, the recommendations for the recognition of CPA involve signs of responsiveness: no breathing or abnormal breathing and no carotid or femoral pulse [5]. This was not always observed in the videos analyzed, some of them exhibiting an inadequate recognition of the pulse of the radial artery and the subclavian vein, and not checking the victim's response to stimuli carried by rescuers. It is noteworthy that in one video the rescuer refers to the absence of peristalsis for recognition of CPA.

Moreover, the procedure "See, hear and feel for breathing", present in the 2005 Guidelines, was quite elucidated in the videos. However, it is known that in the new policy this procedure was removed from the CPR sequence [5]. Thus, after 30 compressions, the rescuer acting alone must open the airway of the patient and perform two rescue breaths.

The 2010 AHA guidelines emphasize the need for a high-quality CPR, that is, observe the following: minimum compression rate 100/min, compression depth of at least two inches (five centimeters) in adults, and, at least one third of the anteroposterior diameter of the chest in infants (four centimeters) and children (five centimeters), complete chest recoil after each compression; minimizing interruptions in chest compressions; and prudence in excess breaths[5].

According to studies by the European Resuscitation Council, the correct positioning of the hands is essential for effective implementation of CPR [6]. However,

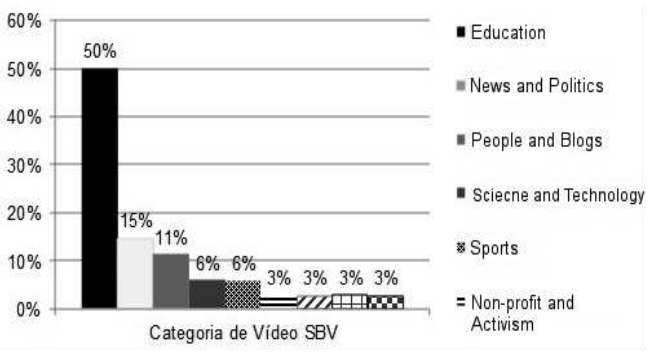

Figure 1 - *Category of the analyzed videos selected by the descriptor "basic life support", 2011. Data in absolute numbers.*

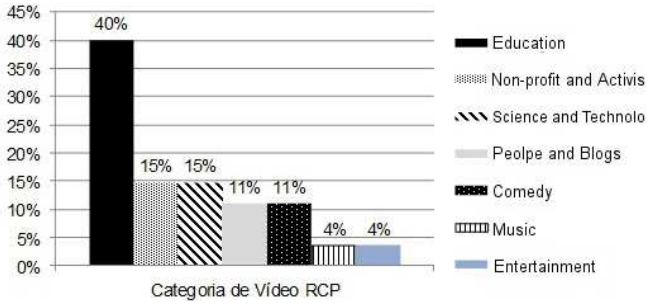

Figure 2 - *Category of the analyzed videos selected by the descriptor "cardiopulmonary resuscitation", 2011. Data in absolute numbers.*

Table 1 - Distribution of selected videos.

Keywords	Total videos – N (%)	Excluded/Repeated – N (%)	Selected – N (%)
CPR	129 (49.6)	102 (51.3)	27 (44.3)
BLS	131 (50.4)	97 (48.7)	34 (55.7)
Total	260 (100.0)	199 (100.0)	61 (100.0)

Table 2 - Authorship of selected videos.

Autoria	RCP N (%)	SBV N (%)	Total
Authorship	14 (51.9)	12 (35.4)	26 (42.6)
Corporation	9 (33.3)	11 (32.3)	20 (32.8)
NGO	4 (14.8)	11 (32.3)	15 (24.6)
Total	27 (100.0)	34 (100.0)	61 (100.0)

NGO: non-governmental organization.

Table 3 - Major errors found.

Major errors	BLS	CPR
Follow the old guidelines of 2005	29.41%	22.22%
Procedure "See. hear and feel for breathing"	11.76%	11.11%
Does not follow the new sequence of algorithm C-A-B-D	14.70%	22.22%
Interruption of chest compressions to fix the paddles of the automated external defibrillator	2.95%	11.11%
Chest compression depth of 4-5 cm	5.80%	7.40%
Inappropriate Recognition of CPA	2.95%	11.11%

Table 4 - Main appropriate conducts.

Appropriate Conducts	BLS	CPR
EFollow the sequence C-A-B-D	11.76%	20.58%
Compliance with the ratio of 30 compressions to two ventilations	20.54%	37.03%
Appropriate Recognition of CPA	11.76%	22.22%
Ask for help	5.88%	18.51%
Emphasis on high quality chest compression	5.88%	11.11%
Ideal place for compressions	8.82%	7.40%

these essential characteristics are trivialized in some videos, in which, for example, disruption of resuscitation cycles is constantly depicted.

In addition, there was no change in the recommendation concerning the compression/ventilation ratio of 30:2 for single rescuer attending adults, children and infants (excluding newborns). Thus, all selected videos that refer to this ratio and quote it correctly but one, which refers to a ratio of 10:2.

It was observed that the AHA chain of survival for adult Acute Cardiac Events, ie immediate recognition of the PCR and activation of the emergency service, early CPR, with emphasis on chest compressions and rapid defibrillation [5,7], was present in some videos, while the effective advanced life support care and integrated post-PCR care were addressed by a single video.

There was a shortage of videos related to CPR in children, observed in only a short video in which the maneuvers were still under the 2005 guidelines.

This shortage extends to the videos that emphasize early defibrillation in cases of PCR[7]. Only two videos from the survey dealt with early defibrillation of ventricular fibrillation, which is not seen with pulseless ventricular tachycardia, even though it is a rhythm for which shock is recommended.

Despite the use of the descriptors "cardiopulmonary resuscitation" and "basic life support", some videos deal with illustrative comedy, news about educational actions, a child performing chest compressions on a teddy bear, an add of a machine designed to perform CPR and hospital products, maintenance of an automated external defibrillator (AED) and sporadic flashes of classes on CPR.

Therefore, after reviewing the videos, we conclude that there is is lack of appropriate videos covering CPR and BLS in the YouTube video sharing website.

Given that this site is the most widespread among Internet users and that many people use it as a source of research, the creation of educational videos to be broadcasted over the internet is necessary, in order to adequately spread the knowledge of CPR to the lay population as well as to the scientific one, and create opportunities for its appropriate use in training spaces and educational classes, favoring the apprehension of the content displayed.

It is known that high-quality CPR increases chances of survival. It is an important message in this context that all victims of cardiac arrest should receive high-quality CPR, its knowledge by the population being fundamental to save lives.

R E S U M O

Objetivo: *Analisar os vídeos no sítio de compartilhamento* YouTube*, observando quais os pontos tratados nos vídeos relacionados à reanimação cardiopulmonar e ao Suporte Básico de Vida.* ***Métodos****: A análise foi baseada no* Guidelines *de 2010 da* American Heart Association.*Trata-se de uma pesquisa do tipo exploratória, quantitativa e qualitativa, realizada no sítio de compartilhamento do* YouTube*, utilizando-se os Descritores em Ciências da Saúde "reanimação cardiopulmonar" e "suporte básico de vida" para vídeos que tinham como foco o suporte básico de vida.* ***Resultados:*** *Durante a investigação inicial encontrou-se 260 vídeos, foram escolhidos para análise,61. Estes,em sua maioria, foram postados por pessoa física e pertencem à categoria* Education*. Grande parte dos vídeos, apesar de serem adicionados ao sítio depois da publicação do* Guidelines *de 2010 da AHA, estava de acordo com as antigas diretrizes de 2005.* ***Conclusão:*** *Embora o sítio de compartilhamento de vídeos* YouTube *seja amplamente usado atualmente, nele há uma carência de vídeos a respeito de reanimação cardiopulmonar e Suporte Básico de Vida adequados às diretrizes da* American Heart Association*, podendo influenciar negativamente a população que o utiliza.*

Descritores: *Recursos audiovisuais. Filmes e vídeos educativos. Ressuscitação cardiopulmonar. Técnicas e procedimentos diagnósticos. Emergências.*

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