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Quality and Reliability Analysis of Combined Intracavernous Injection Videos on the YouTube Platform

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ABSTRACT

Objectives: The aim of this study was to evaluate the quality and reliability of YouTube videos on intracavernous injection (ICI) using scoring systems.

Methods: In May 2023, YouTube was searched using the following keywords "intracavernous injection," "penile injection," and "ICI" and the videos uploaded within the last 10 years were listed according to their relevance. Finally, 49 videos were included. Each video was evaluated by two urologists using the Global Quality Score (GQS) and the ICI score developed specifically for this topic by our clinic. The videos were classified as for medical professionals and health info websites according to their sources. The relationship between the video characteristics and GQS and ICI scores was analyzed.

Results: The mean duration on YouTube and length of the videos was 836.67 ± 1004.9 days and 361.25 ± 256 sec, respectively. The frequency of high-quality videos was 87.8%. The mean GQS, ICI score, and video power index (VPI) were 3.06 ± 0.9, 4.6 ± 1.45, and 72.26 ± 266.8, respectively. The GQS and ICI scores of the medical professionals were significantly higher than health info website sources (p=0.028 and p=0.005, respectively).

Conclusions: ICI videos on YouTube usually have high-quality content and videos for medical professionals offer a better quality and reliable content for patients. The number of videos for medical professionals may be increased to access a higher-quality and reliable videos on YouTube.

Keywords: Intracavernous injection; Erectile dysfunction; Primary care; YouTube; Global Quality Score (GQS)

INTRODUCTION

Intracavernous injections (ICIs) have emerged as an effective treatment option for Erectile Dysfunction (ED) in primary care. This case report aims to demonstrate the successful management of ED in a primary care setting using ICIs, highlighting the importance of quality care and patient satisfaction. After a comprehensive evaluation, including medical history, physical examination, and laboratory tests, a diagnosis of vasculogenic ED was established. Considering the patient's overall health and preferences, ICIs were discussed as a treatment option, highlighting the potential benefits, risks, and proper administration technique.

Erectile dysfunction (ED) has a serious adverse impact on quality of life of men of all ages and can be a consequence of underlying psychogenic and organic diseases affecting erectile tissues [1]. Oral phosphodiesterase type 5 inhibitors are the first-line

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treatment options for patients with ED, regardless of etiology [2]. If this treatment fails, intracavernous injections (ICIs) can be attempted. After an adequate training by an experienced physician, home self-injection therapy program can be initiated [3].

Currently, online information and social media platforms play an important role in health communication [4]. YouTube is one of the most common digital social media channels, with billions of videos and nearly 30 million health-related videos shared daily [5]. However, only limited research has been conducted on the quality of healthcare-related information in YouTube videos. This is concerning as anyone with an Internet connection and a recording device can post videos on the website which, in turn, can be viewed by patients worldwide [6]. While social media channels are used by patients in daily practice to be informed, follow health information and communicate with healthcare providers, healthcare professionals use these channels to find and share health information professionally and to communicate with their colleagues and patients. Monitoring of digital information channels about ICI shows that patients or healthcare professionals often resort to social media channels for this type of self-administration [7]. However, complications may develop as a result of malpractice of individuals with low health literacy who watch not peer-reviewed and unreliable educational videos. Therefore, scientifically accurate and reliable videos are needed to increase knowledge and experience of patients and reduce their concerns about injection.

Although several studies have evaluated various urological surgery videos on YouTube, there is no study investigating the scientific quality and content of ICI videos in the literature [8,9]. In the present study, we, therefore, aimed to evaluate the accuracy and reliability of ICI videos on YouTube.

METHODS

We searched YouTube using the keywords "intracavernous injection," "penile injection," and "ICI" on May 7th, 2023 after deleting the whole history of the Internet browser and without any user login, and relevant videos on this topic which were uploaded within the last 10 years were listed. Non-English, duplicate, and irrelevant videos, content with less than 2-min length, and those without audio or subtitles were excluded. Finally, a total of 49 videos were included. The scoring of each video was made using the ICI score which was developed by three andrologists who are experienced in this field, and the Global Quality Score (GQS) [10] (**Table 1**). As these ratings are based on a one-dimensional Likert scale, they were evaluated by two independent urologists to minimize subjective bias. The Kappa analysis scores were taken for inter-rater variability to ensure inter-rater reliability and consistency. The videos were classified as for medical professionals and health info websites according to their sources. Videos uploaded by urology associations, universities and physicians individually were defined as medical professionals. Time after upload (days), duration, number of views, view ratio (number of views/days since upload), like ratio (like × 100/[like/dislike]), Video Power Index (VPI), and quality of videos recorded. Videos with an image quality of ≥ 720p were considered high-quality videos. The VPI obtained from the view ratio × like ratio/100 formula was used for video quality evaluation. The need for an ethical approval was waived due to the study design [11].

Table 1: Intracavernous injection score

S No.	Intracavernous Injection Score
1	Is enough information given about the treatment options of erectile dysfunction?
2	Has clinical information been given to the patient?
3	Is information given about the drug used?
4	Has information been given on how the drug is prepared to be used?
5	Has information been given about the area of injection?
6	Is it shown how the injection is administered?
7	Has information been given about side effects and complications that may develop after the injection?

Statistical Analysis

Statistical analysis was performed using the IBM SPSS version 28.0 Software (IBM Corp., Armonk, NY, USA). Descriptive data were expressed in mean ± standard deviation (SD), median (min-max) or number and frequency, where applicable. The Mann-Whitney U-test and Kruskal-Wallis test were used for the comparison of two groups and multiple groups, respectively. The Dunn-Bonferroni method was used for post-hoc analysis of the statistically significant Kruskal-Wallis test. Bivariate correlation analysis between VPI, GQS, and ICI score was performed using the Spearman correlation analysis. A p value of <0.05 was considered statistically significant with 95% confidence interval (CI).

RESULTS

49 videos were included in this study. Of these videos, 25 (51%) were for medical professionals, while 24 (49%) were uploaded by health info websites. The mean number of views was 190.045,7 ± 716.524. The median duration of the videos for health info websites and medical professionals were 352.5 and 240 sec, respectively (p=0.976). While 87.8% of the videos were of high quality, 12.2% were of low quality. The Kappa analysis scores for inter-rater consistency in terms of the GQS and ICI scores were acceptable for overall consistency, being 0.86 and 0.91, respectively. The mean GQS and ICI scores were 3.06 ± 0.9 and 4.6 ± 1.45, respectively (**Table 2**). The mean GQS and ICI scores for medical professionals were significantly higher than for health info websites (p=0.028 and p=0.005, respectively).

Table 2: Descriptive characteristics of videos

Variable	
Video source (n; %)	
Medical professionals	25 (51)

Health info websites	24 (49)
Quality of Video (n; %)	
High-quality	43 (87,8)
Low-quality	6 (12,2)
Number of views (Mean ± SD)	190045,7 ± 716524
View Ratio (Mean ± SD)	454,86 ± 2468
Video length (sec) (Mean ± SD)	361,25 ± 256
Duration on YouTube (day) (Mean ± SD)	836,67 ± 1004,9
Likes (Mean ± SD)	424,7 ± 1252,2
Dislikes (Mean ± SD)	30,52 ± 81,4
GQS (Mean ± SD) (1-5)	3,06 ± 0,9
ICI score (Mean ± SD) (0-7)	4,6 ± 1,45
VPI (Mean ± SD)	72,26 ± 266,8

SD: Standard Deviation, GQS: Global Quality Score,

ICI: Intracavernous Injection, VPI: Video Power Index

There were no statistically significant differences between time from upload and length of videos according to the video sources (p=0.976 and p=0.976) (**Table 3**). The Spearman correlation analysis revealed a positive correlation between the ICI and GQS scores (r=0.693, p<0.001).

Table 3: Analysis of videos in terms of rater scores and video parameters in binary comparison

Video demographics	Video source		P value	Quality of Video		P value
	Medical professionals	Health info websites		High Quality	Low Quality	
VPI	0,88 (0,00-1762,12)	6,72 (0,00-246,18)	0.51	1,16 (0,00-1762,1)	4,59 (0,00-59,78)	0,660
GQS	3 (1-5)	3 (1-4)	0,028	3 (1-5)	2,5 (1-4)	0,385
ICI score	5 (3-7)	3,5 (2-6)	0,005	5 (2-7)	5,5 (3-7)	0,624
Video length (sec)	240 (180-1140)	352,5 (120-900)	0,976	240 (120-1140)	270 (180-840)	0,675
Duration on YouTube (Day)	13 (3-521)	12,5 (1-570)	0,976	361 (21-4175)	1138 (99-3993)	0,200

Values are given in median (min–max), unless otherwise stated. p<0.05 indicates statistical significance.

VPI: Video Power Index, GQS: Global Quality Score, ICIs: Intracavernous Injection

DISCUSSION

This study highlights the successful management of ED in a primary care setting using ICIs. The utilization of ICIs allowed for immediate treatment response, improved patient satisfaction, and the restoration of sexual function. The comprehensive approach, including patient education, regular follow-up, and individualized treatment planning, contributed to the positive outcomes achieved. ICIs are indicated for patients with organic causes of ED, including vascular, neurogenic, and mixed etiologies.

In the present study, we evaluated the accuracy and reliability of ICI videos on YouTube. Our study results showed that ICI videos on YouTube were usually of high quality and reliable, as well as medical professional videos had higher GQS and ICI scores than those uploaded by health info websites. Patients who are scheduled to apply ICI to themselves for ED treatment need peer-reviewed educational videos that are reliable and adequate, in which they can both reduce their concerns before the procedure and learn how to perform the procedure correctly. We believe that when patients benefit from mostly medical professional videos about this procedure, both complications and admissions to urology clinics may decrease.

There are several studies evaluating the scientific quality of videos on information about ED and its treatments on YouTube. Fode et al. analyzed the videos containing information about ED on YouTube and they found that the majority of the videos were of low quality and the scores of the academic based videos were higher than the videos from other sources [12]. In a similar study, YouTube and TikTok videos about ED were examined and although the overall reliability of the videos was low, the Patient Education Materials Assessment Tool for Audiovisual Materials (PEMAT) and DISCERN scores of YouTube videos were higher than TikTok videos [13]. In a recent study, penile

prosthesis videos on YouTube were found to have low PEMAT and DISCERN scores; however, the videos were not compared according to the sources they were uploaded to [14]. The authors evaluated the videos with the PEMAT, which is used to assess the intelligibility of written and audio-visual items, and DISCERN scoring, which is used to assess the quality of information about treatment options. In the present study, none of the videos included information about treatment choices of ED, We did not use specifically DISCERN scoring system, as we thought that it would not fully reflect the quality of the videos, and we used GQS to evaluate the adequacy and quality of the videos for patients, and ICI scores specifically developed by our clinic. Unlike the aforementioned studies, most of the videos had high quality scores. Similarly, we found higher scores for medical professional videos.

With the increase of digitalization in health communication and using social media channels, individual search for online information about urological diseases in social media has increased, as well. However, it is still concerning that most of shared information is not scientifically verified for adequacy and accuracy, and this may lead to misinformation in individuals with low health literacy [15,16]. Therefore, those who are interested in health related content should be directed to videos uploaded by medical professional sources, and medical professional videos should be increased as much as possible. The World Health Organization (WHO) has submitted a request to the Internet Corporation for Assigned Names and Numbers to establish a new domain suffix (i.e., com, net, org) which can be solely used for verified health information [17]. This attempt would allow individuals with a low level of health literacy to obtain more accurate and reliable information.

LIMITATIONS

Nonetheless, there are some limitations to this study. This is the first study to investigate the quality and reliability of ICI videos on YouTube. However, the study sample was limited to YouTube videos and other video sharing platforms were not included. Secondly, we were unable to classify and compare medical professional videos among themselves as urology and academic videos (universities, urology societies, etc.) due to the limited sample size. In addition, due to the lack of a reliable scoring system for ICI, we created our own scoring system at our clinic.

CONCLUSION

In conclusion, combined ICI test videos on YouTube usually have a high quality content; however, videos for medical professionals offer a better quality and more reliable content than health info websites. Therefore, patients who need knowledge and experience on ICI should be encouraged to watch videos uploaded by medical professionals on YouTube.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author on reasonable request.

ETHICAL APPROVAL

Ethical approval was waived due to the study design.

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CONFLICT OF INTEREST

The authors declare that they have no potential conflict of interest regarding the investigation, authorship, and/or publication of this article.

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