

How to Prevent Kidney Stones: What Is Online Video Content Imparting to Our Patients?

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Background

Ureteric calculi are amongst the most painful conditions encountered in medicine, with some patients describing their experience as worse than childbirth[1]. Because of this threat of pain, patients will seek methods to prevent nephrolithiasis formation and will often refer to unverified sources for this information. As clinicians, we must provide evidence-based patient education and recognise that patients may have misinformed preconceptions when seeking medical treatment.

In recent years, particularly due to the COVID-19 global pandemic, the internet has become a readily accessible source of health information[2]. Following Google, YouTube is the second-most visited website worldwide, with the largest collection of free-to-access video content and an ever-growing influence with health information distribution[3]. This is of concern, as unregulated videos uploaded to this platform may provide misleading information and perpetuate a misunderstanding of the appropriate treatment for potentially life-threatening health conditions.

Aims

The aim of this study was to assess the accuracy, understandability and actionability of online video content available to patients regarding how to prevent kidney stones.

Methods

Three independent reviewers (2 urology residents and an experienced urologist) searched “How to prevent kidney stones” on YouTube on October 30, 2022, and evaluated the first 60 videos, mirroring the content patients would likely review. No search, geographic, or filter restrictions were applied. Videos in languages other than English without subtitles were excluded from the study.

Data related to the video producer, popularity, quality of video content, understandability, and viewer actionability was recorded. Each video was independently assessed by each reviewer using both DISCERN criteria and the Patient Education Materials Assessment Tool (PEMAT)[4,5]. The DISCERN criteria are commonly used in assessing the reliability and quality of information provided by audio-visual content related to consumer health information. DISCERN consists of 8 questions related to the reliability of the audio-visual content and 7 questions related to the quality of information on treatment choices, with an overall score of 1 (serious or extensive shortcomings) to 5 (minimal bias) being awarded[4]. The PEMAT is a tool developed to assess both the understandability and actionability of audio-visual content. It consists of 13 questions relating to the audio-visual content’s understandability and 4 questions related to its actionability, with each question receiving a grade of “Agree = 1 point”, “Disagree = 0 points”, or “Not Applicable”. An “Agree” grade was chosen if the content was reflective of the question $\geq 80\%$ of the time. Overall understandability and actionability scores were then calculated as a percentage based on the applicable questions and grades received[5,6].

Key Words

Humans, teaching, video recording, kidney calculi, preventative medicine

Competing Interests

None declared.

Article Information

Received on January 25, 2023
Accepted on April 4, 2023
This article has been peer reviewed.
Soc Int Urol J. 2023;4(5):423–426
DOI: 10.48083/ADA19602

Before individual assessment of content, all reviewers familiarised themselves with each tool. Results were collated and any discrepancies in grading of videos with each tool were discussed amongst reviewers with a new grading given. Data were analysed using IBM SPSS Statistics V28. Descriptive analyses were performed. Analysis was performed using *t* tests and regression analyses where appropriate. *P*-values < 0.05 were considered statistically significant.

Results

The first 60 videos listed by YouTube when searching “How to prevent kidney stones” were produced between February 2010 and October 2022. Their characteristics are outlined in [Table 1](#). Three videos were excluded from the study as they were not in English and did not have subtitles. Of the remaining 57 videos, only 49% were produced by a recognised medical institution, and 23% had advertising material related to medical services that diagnosed or treated renal calculi. Fifty-two videos (91%) were addressed at patients or carers, whilst 5 (9%) were targeted at clinicians. The median video length was 2:05 minutes. The median number of subscribers per channel was 7600. The median number of total video views and views per month, were 11 577 and 433.4, respectively. Overall, viewers seemed content with the available video content with a median of 127 likes per video; 74% of videos encouraged audience engagement through viewer comments.

Of concern, only 17 videos (30%) described how renal calculi form, with just 3 videos (5%) describing possible nephrolithiasis complications. Forty-two of the videos (74%) referred to methods for the prevention of nephrolithiasis, but less than half of these (19/42) described 3 or more methods other than increased oral fluid intake. The overall quality of referenced or evidence-based material regarding nephrolithiasis prevention was moderate, manifested by a median (range) DISCERN criteria score of 3 (1–5). The median (range) PEMAT understandability and actionability scores were 68.5% (20%–100%) and 33% (0%–100%), respectively.

Content produced by recognised medical institutions was associated with higher PEMAT understandability (*P* = 0.013) and actionability (*P* = 0.001) and DISCERN criteria (*P* = 0.005) scores. However, PEMAT

(understandability, actionability) and DISCERN criteria scores were not significantly associated with video view numbers (PEMAT *P* = 0.06, *P* = 0.97; DISCERN *P* = 0.26) or channel subscriber numbers (PEMAT *P* = 0.07, *P* = 0.63; DISCERN *P* = 0.06).

Discussion

Interest in nephrolithiasis has exponentially increased on YouTube in the last few years[7–9]. This is one of the first studies to assess information quality for online audio-visual content in relation to nephrolithiasis prevention. As expected, we found that videos created by medical institutions were of higher quality and accuracy, which mirrors findings from other studies assessing YouTube as source of information related to nephrolithiasis treatment options[9,10]. Whilst video content was generally well presented, as evidenced by high PEMAT understandability scores, there was limited discussion regarding methods for preventing renal stone formation and the possible complications of nephrolithiasis, possibly dissuading patients from seeking medical help. Furthermore, of concern, there was no association between PEMAT or DISCERN criteria scores and channel subscriber numbers or video views, mirroring concerns reported by other studies about patients obtaining health information from popular but erroneous videos[11]. Whilst online audio-visual content may be effective in conveying information to patients, the lack of content regulation is a significant concern for this platform, highlighting the need for the involvement of urologists in the creation of engaging, accurate audio-visual content to provide reliable information in our internet-based society.

Conclusions

Clinicians must be aware of the plethora of online videos available to patients before consultations, as patients may have formed erroneous preconceptions regarding treatment options for their stone disease. Clinicians must explore and address the concerns of these patients to ensure they are educated with material from authoritative sources, which may include video content produced by recognised medical institutions, so that patients can provide genuine informed consent before stone treatment.

TABLE 1.

Summary of online video content addressing “How to prevent kidney stones”

Metadata	
Number of videos included/excluded (total)	57/3 (60)
Date of production	16 February 2010–19 October 2022
Produced by a recognised medical institution, n (%)	28 (49)
Advertisements related to stone prevention or treatment, n (%)	13 (23)
Video duration, median (range)	2:05 minutes (00:27–37:36 minutes)
Number of channel subscribers, median (range)	76.3k (93–17.8 million)
Number of total views, median (range)	11577 (23–5552746)
Number of average views per month, median (range)	433.4 (0.4–84904.4)
Number of video likes, median (range)	127 (0–96000)
Ability to comment on the video, n (%)	42 (74)
Target Audience	
Patients, n (%)	51 (89)
Carers, n (%)	1 (2)
Clinicians, n (%)	5 (9)
Video Content	
Description of how stones form, n (%)	17 (30)
Description of complications from nephrolithiasis, n (%)	3 (5)
Explanation of 3 or less methods of stone prevention, n (%)	23 (40)
Explanation of 4 or more methods of stone prevention, n (%)	19 (33)
Assessment of Video Content	
Overall PEMAT understandability score, median (range)	68.5 (20–100)
Overall PEMAT actionability score, median (range)	33 (0–100)
Overall DISCERN score, median (range)	3 (1–5)

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