Utjecaj videoprezentacije na promjenu mišljenja albanskih studenata o bezbolnoj anesteziji kod djece

Role of “Video Assisted Lecture” on Changing Albanian Undergraduate Students’ Opinion Regarding Pain-free Dental Injections in Children

Introduction

Pain and anxiety control in dentistry are important. It is obvious that when the practitioner treats the tissue in a friendly manner, both children and adults will feel safer in the dental chair. A local anesthetic (LA) injection is one of the most anxiety provoking procedures in children (1-8). Mastering the skill in delivering the local anesthesia in a painless manner is the key to improving the cooperation of child patients (9). Only in this way we will be able to alleviate dental fear and anxiety (2, 10). However, this fear and anxiety issue can be taken under control with novel teaching approaches in the education of new generation of dentists. Recently, Kuscu et al (4) stated that dental education should also focus on the possibility of pain-free local analgesia. When promoting pain-free local analgesia, it is important to establish a method of local anesthetic injection that does not give rise to pain and anxiety (11). Many variables that might be involved in painful LA injections had been tested for possible ways of minimizing the discomfort perceived at the time of injection (12).
Variables included speed and pressure of injections, temperature of the solution and also novel technological injection devices (6). Recently, it has been reported that following a two minute topical anesthetic application, slow and low-pressure injections, together with effective behavior management techniques are the key toward pain-free and comfortable delivery of LA (2,4,13).

Dental education is very important for improving students’ theoretical and clinical skills to perform LA. Although dental schools introduce different methods of teaching and practicing exercises for LA, most of the time they are more focused on the effectiveness of anesthesia rather than the pain-free administration. The way students are educated influences their opinion and attitudes.

Video technology can be used for educational purposes in the training of individuals on subjects which require theoretical knowledge together with practical skills such as first aid, tracheal intubations, and for LA administrations in dental treatments (14). Video modeling provides the demonstration of the procedural information and enables the modeling of the targeted skills. Video-assisted teaching has many benefits for the learners as it makes them more familiar with the nature of the skills (14). In the dental environment video-assisted teaching may help the students observe not only the technical aspect of the injection procedure but also the behavioral management of the patient. It is usually assumed that dental injections are painful. However, having this kind of prejudice and without observing a real pain-free dental injection, it is not possible for new learners to imagine pain-free dental injections in children.

The aim of this pilot study was to assess the effectiveness of video-assisted lecture in changing the opinions of dental students toward pain-free dental injections in children.

Material and Methods

The study protocol was approved by the Faculty of Dental Medicine, Conservative Dentistry Department. Participant blindness was ensured by not informing participants of the evaluation process during this LA theoretical and video lecture sessions. The participants included 95 healthy and volunteering young adults, aged 22-23 years who were fifth-year dental students at the University of Medicine of Tirana, Faculty of Dental Medicine, Albania. The invitation was extended to all the fifth-year dental students, however, not all were present for the session. The fifth-year students were chosen for the study because they are more trained as they start patient practicing local anesthesia in the third year and the course of pediatric dentistry is introduced in the fifth year of their studies. Only 62 of participating students (52 F, 10 M) had followed the full study protocol. The study was conducted in two stages: theoretical, and video stages focused on two main themes, named as recently defined by Kuscu et al (5). The first theme was Efficient psychological management including definition of pain, behavior management techniques and emphasizes on –stimuli control- perceived control. The present theme includes introduction of conventional (Tell show-do, Voice control, Non-verbal communication, Posi-
Druga tema bila je učinkovita kontrola boli koja je uključivala uspješnu primjenu bezbolnih tehnika LA-e i sljedećih obveznih mjera (2, 4):
(i) topikalni anestetik (2 min.) – sprječavanje neugodnog okusa smotuljima staničevine
(ii) penetraciju 0,5 – 1 mm + usporeno ubrizgavanje
(iii) bukalnu infiltraciju do mandibularne anestezije.

Prije predavanja studenti su u anketi izrazili svoje mišljenje o bezbolnim injekcijama LA-e kod djece, što je bila početna točka (slika 1.). Svima je savjetovano da odgovaraju na temelju vlastita mišljenja i koriste se pseudonimom/lozinkom kako bi se osigurala zaštita privatnosti. Nije bilo vremenskog ograničenja za dovršetak ankete, a za ispunjavanje trebale su od dvije do tri minute.

U teorijskoj fazi, nazvanoj 1. faza, predavanje o bezbolnoj tehnici lokalne analgese u kojemu su objašnjeni i demonstrirani detalji tehnike, slušali su svi sudionici. Nakon toga sudionici su ponovno ispunili istu anketu koja je u analizi tretirana kao faza 1. U drugom predavanju, nazvanom druga faza, trebali su objasniti i demonstrirati uvijek tačnu tehniku.

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Pseudonim/lozinka • Alias/Nickname: ............................................... Spol (Ž/M) • Gender (F/M).................

Anketa za istraživanje • Survey for
PRISTUP I STAJALIŠTA STUDENATA PREMA DJETETU KAO PACIJENTU •
THE STUDENT'S APPROACH AND ATTITUDE TOWARD CHILD PATIENT

Molimo da označite svoje mišljenje o izjavama u nastavku; odgovori su povjerljivi i koristiti će se samo u znanstvene svrhe. • Please mark your sincere opinions about the statements below. Answers given will be confidential and will only be used for scientific purposes.

1) Bol je neizbježna tijekom lokalne anestezije djece. • Pain is inevitable during local anesthesia in children.
(1) Potpuno se slažem • Totally agree
(2) Slažem se • Agree
(3) Niti se slažem, niti se ne slažem • Neither agree nor disagree
(4) Ne slažem se • Disagree
(5) Uopće se ne slažem • Totally disagree

2) Topikalni anestetici ne bi se trebali davati zbog lošeg okusa, nego bi trebalo primijeniti smotuljke staničevine. • Topical anesthetic solutions, due to possible bad taste should not be sprayed in children, should better be applied by the help of a cotton pellet.
(1) Potpuno se slažem • Totally agree
(2) Slažem se • Agree
(3) Niti se slažem, niti se ne slažem • Neither agree nor disagree
(4) Ne slažem se • Disagree
(5) Uopće se ne slažem • Totally disagree

3) Lokalnu anesteziju treba aplicirati što je brže moguće ako dijete nije kooperativno. • Local anesthesia should be administered promptly and as quick as possible in uncooperative children.
(1) Potpuno se slažem • Totally agree
(2) Slažem se • Agree
(3) Niti se slažem, niti se ne slažem • Neither agree nor disagree
(4) Ne slažem se • Disagree
(5) Uopće se ne slažem • Totally disagree

4) Djeci se može bezbolno dati injekciju lokalne anestezije. • It is possible to administer pain-free dental injections in children.
Molimo označite na ljestvici • Please mark on the scale below.

Uopće se ne slažem • Totally disagree

40 60 80 100

Potpuno se slažem • Totally agree

Slika 1. Anketa • Figure 1. Survey
studentima je prikazana videoprezentacija dentalnih injekcija o kojima su slušali u prvoj fazi. Njihovo mišljenje i treći je put dobiveno na temelju iste ankete kao i nakon druge faze istraživanja, što se vodilo kao faza 2. Studenti nisu imali uvid u prije ispunjene ankete. Rečeno im je da se koriste istim pseudonimom u svim anketama.

In the theoretical stage, named Stage 1, a lecture on the “Pain free Local Analgesia Technique” was given to all the participants where the details of the technique were explained and demonstrated. After the theoretical lecture, participants completed the same survey again which corresponds to the era Stage 1. In the second lecture, named Stage 2, students were shown video demonstrations of dental injections according to the theoretically lectured technique. Students’ opinions were collected for the third time by the same survey after the second stage of the study, corresponding to era Stage 2. The students were blind to the subsequent surveys completed after the first and the second stages. They were told to use the same nickname for all surveys.

Statistička analiza
Podatci su obrađeni statističkim softverom NCSS 2007 (Utah, SAD), te sljedećim analizama: analizom varijance, Newman-Keulsovim i Pearsonovim testom korelacije. P-vrijednost manja od 0,05 smatra se statistički značajnom.

Rezultati
Analizirani su rezultati ispunjenih upitnika. Prije istraživanja samo je 47,9% ispitanika vjerovao u moguću bezbolnu lokalnu anesteziju za djecu, a nakon istraživanja postotak je porastao na 67,7% (p = 0,0001) (tablica 1).

U tablici 2. srednji su rezultati [Likertova ljestvica u rasponu od 1 (potpuno se slažem) do 5 (uopće se ne slažem)] prema kojima se vide ocjene studenata za tri tvrdnje prije istraživanja (početna točka) i nakon prve i druge faze. Četvrtu izjavu evaluirana je vizualnom analognom ljestvicom (0 – 100). Statistička razlika u rezultatima utvrđena je između faze 1 i faze 2 u prvoj izjavi da je bol kod djece neizbježna tijekom ubrizgavanja lokalne anestezije (p = 0,0001) (tablica 2.). Kad je riječ o odgovoru za izjavu 1, srednja vrijednost početnih rezultata bila je statistički različita od prosječnih rezultata za prvu i drugu fazu (p = 0,0001) (tablica 3.). No nije bilo

Statistical Analysis
The data were processed with the NCSS 2007 Statistical software (Utah, USA) using the following analyses: Variance analysis, Newman Keuls, Pearson Correlation tests. A p-value less than 0.05 was considered to be statistically significant.

Results
The results of the applied questionnaires were analyzed. Before the study, only 47.9% of students believed in the possibility of pain-free local anesthesia in children, whereas after the study the percentage had risen to 67.7% (p=0.0001) (Table 1).

Table 2 represents the mean scores (Likert scale, ranging from 1 (totally agree) to 5 (totally disagree) where students scored their opinions regarding the three statements before the study (Baseline) and after Stage 1 and Stage 2. The fourth statement has been evaluated with A visual analogue scale (0–100). A statistical difference in scores at baseline was shown between Stage 1 and Stage 2 in the first statement “Pain is inevitable during local anesthesia in children” (p = 0.0001). (Table 2) Regarding answers to statement 1, mean baseline scores were found to be statistically different from the mean

| Tablica 1. Distribucija odgovora za svaku fazu (podebljani odgovori su oni koji ciljaju na bezbolnu terapiju za djecu) |
|---------------------------------------------------------------|
| Table 1 Distribution of answers given in each stage (Bold answers are the expected ones targeting pain-free dentistry for children) |

| Izjava 1 • Statement 1 | Početna točka • Baseline | Faza 1 • Stage 1 | Faza 2 • Stage 2 |
|------------------------|---------------------------|----------------|-----------------|
| Potpuno se slažem • Totally agree | 2 | 2,7 | 3 | 4,2 | 3 | 4,8 |
| Slažem se • Agree | 21 | 28,8 | 15 | 20,8 | 7 | 11,3 |
| Niti se slažem, niti se ne slažem • Neither agree nor disagree | 15 | 20,5 | 6 | 8,3 | 10 | 16,1 |
| Ne slažem se • Disagree | 35 | 47,9 | 35 | 48,6 | 26 | 41,9 |
| Uopće se ne slažem • Totally disagree | 0 | 0,0 | 13 | 18,1 | 16 | 25,8 |

| Izjava 2 • Statement 2 | Početna točka • Baseline | Faza 1 • Stage 1 | Faza 2 • Stage 2 |
|------------------------|---------------------------|----------------|-----------------|
| Potpuno se slažem • Totally agree | 14 | 19,2 | 32 | 44,4 | 34 | 54,8 |
| Slažem se • Agree | 43 | 58,9 | 35 | 48,6 | 22 | 35,5 |
| Niti se slažem, niti se ne slažem • Neither agree nor disagree | 9 | 12,3 | 1 | 1,4 | 1 | 1,6 |
| Ne slažem se • Disagree | 7 | 9,6 | 4 | 5,6 | 5 | 8,1 |
| Uopće se ne slažem • Totally disagree | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 |

| Izjava 3 • Statement 3 | Početna točka • Baseline | Faza 1 • Stage 1 | Faza 2 • Stage 2 |
|------------------------|---------------------------|----------------|-----------------|
| Totally agree | 10 | 13,7 | 4 | 5,6 | 4 | 6,5 |
| Agree | 24 | 32,9 | 12 | 16,7 | 9 | 14,5 |
| Neither agree nor disagree | 10 | 13,7 | 7 | 9,7 | 4 | 6,5 |
| Disagree | 21 | 28,8 | 34 | 47,2 | 33 | 53,2 |
| Totally disagree | 8 | 11,0 | 15 | 20,8 | 12 | 19,4 |
Videodemonstracija bezbolne anestezije

Tablica 2. Odgovori u različitim fazama istraživanja
Table 2 Answers to the survey regarding different stages of the study

| Izjave • Statements | Početna točka • Baseline | Faza 1 • Stage 1 | Faza 2 • Stage 2 | P     |
|---------------------|-------------------------|-----------------|-----------------|-------|
| 1 - Bol je kod djeteta neizbježna tijekom lokalne anestezije. • Pain is inevitable during local anesthesia in children. | 3,14±0,93 | 3,56±1,14 | 3,73±1,12 | 0,0001 |
| 2 - Topikalni anestetici ne bi se trebali ubrizgavati zbog lošeg okusa, nego bi se trebali primijeniti smotuljci stanićevine. • Topical anesthetic solutions, due to possible bad taste should not be sprayed in children, should better be applied by the help of a cotton pellet. | 2,12±0,83 | 1,68±0,77 | 1,63±0,87 | 0,0001 |
| 3 - Lokalnu anesteziju treba aplicirati što je brže moguće ako je dijete nekooperativno. • Local anesthesia should be administered promptly and as quick as possible in uncooperative children. | 2,9±1,27 | 3,61±1,16 | 3,65±1,15 | 0,0001 |
| 4 - Djeci se može bezbolno dati injekcija lokalne anestezije. • It is possible to administer pain-free dental injections in children. | 60±2,05 | 70,24±2,03 | 80,06±1,71 | 0,0001 |

Tablica 3. Usporedba izjava na početku, u fazi 1 i fazi 2
Table 3 Comparison of Statements in Baseline, Stage 1 and Stage 2

| Newman-Keulsov test • Newman Keuls test | Izjava 1 • Statement1 | Izjava 2 • Statement2 | Izjava 3 • Statement3 | Izjava 4 • Statement4 |
|------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Početna točka / faza 1 • Baseline / Stage 1 | 0,001 | 0,0001 | 0,0001 | 0,0001 |
| Početna točka / faza 2 • Baseline / Stage 2 | 0,0001 | 0,0001 | 0,0001 | 0,0001 |
| Faza 1 / faza 2 • Stage 1 / Stage 2 | 0,137 | 0,497 | 0,490 | 0,0001 |

Discussion

There are studies interfering with the administration and receipt of a local anesthetic injection in current dental educational systems (15-21). However, there is a limited number of studies regarding dental education on serving pain-free local analgesia (4, 22). At this point, it is important to highlight

Rasprava

Neka se istraživanja bave tehničkim aspektima primjene lokalne anestezije u aktualnim sustavima stomatološke edukacije (15 – 21). No ograničen je broj onih o edukaciji o bezbolnoj lokalnoj analgeziji (4, 22). Trenutačno je važno istaknuti razliku između pojmovanja lokalna anestezija i lokalna scores of Stage 1 and Stage 2 (p=0.0001). (Table 3) However, there was no statistical difference between mean scores of Stage 1 and Stage 2 (p=0.137).

Regarding the statement 2 “Topical anesthetics should not be sprayed due to their bad taste, and should be applied by means of a cotton pellet” there was a significant change in opinions (in totally agree) (Table 1). A statistical difference in baseline scores was shown between Stage 1 and Stage 2 scores in statement 2 (p=0.0001) (Table 2). Regarding the answers to statement 2, mean baseline scores were found to be statistically different from mean scores of Stage 1 and Stage 2 (p=0.0001) (Table 3). However, there was no statistical difference between mean scores of Stage 1 and Stage 2 (p=0.497) (Table 3).

For statement 3, a statistical difference in baseline scores was shown between Stage 1 and Stage 2 scores “Local anesthesia should be administered promptly and as quick as possible in uncooperative children” (p=0.0001) (Table 2). Regarding the answers to statement 3, mean baseline scores were found to be statistically different from mean scores of Stage 1 and Stage 2 (p=0.0001) (Table 3). However, there was no statistical difference between mean scores of Stage 1 and Stage 2 (p=0.490) (Table 3).

Regarding the statement 4, baseline scores and Stage 1 and Stage 2 scores represent statistical differences for all comparisons (p=0.0001) (Table 2) (Table 3). This statement acted in concordance as a control for statement 1 (r=0.32, p=0.006)
analgezija, pri čemu je ono što stomatolozi prakticiraju lokalna analgezija pri kojoj nema gubitka osjećja pritiska, nego samo boli. Prema Kuscu i suradnicima (2), taj fenomen potpu- no je u skladu s našom filozofijom o bezbolnoj terapiji. 

Albanija je manja europska zemlja u kojoj se stomatološka edukacija temelji na promjenama kurikuluma na fakultetima. Tijekom edukacije studenata o toj temi i o novim tehni- kama, nastava u kojoj se primjenjuje videotehnologija mogla bi biti učinkovita didaktička metoda. Učenje uz videoprezenta- 
taciju često se primjenjuje i vrijedan je didaktički alat ko- ji treba uzeti u obzir kada je riječ o poučavanju pojedinaca (14, 23 – 35).

Provedeno je nekoliko istraživanja o učinkovitosti meto- 
da poučavanja uz videoprezentaciju. Uzorci su uključivali školske učitelje, medicinske sestre, zaposlenike, školsku dje- 
cu, studente medicine i dentalne medicine te autističnu dje- 
cu. Teme su uglavnom obuhvaćale prvu pomoć, osnovnu ži- 
votnu potporu, hitnu pomoć, nefarmakološku kontrolu boli, kineziološku i psihološku problematiku, zdravstvene proble- 
me školske djece, neurološku procjenu, tehničke splintiranja i oralnu zdravstvenu zaštitu djece. Svi autori izvijestili su o 
opozitivnim rezultatima nakon poučavanja s pomoću video- 
tehnologije u usporedbi s tradicionalnim predavanjima i ista- 
knuli su poboljšanje znanja i vještina studenika (14, 24 – 35). 

U ovom radu mišljenje o bezbolnoj lokalnoj analgezi- 
ji među studentima poboljšalo se nakon teorijskih predava- 
nja i videoprezentacije (faza 1 i 2). U usporedbi s teorijskim 
predavanjem, rezultati su imali statistički ograničenja u pri- 
kazivanju učinkovitosti videoprezentacije. Videopredstavlja-

jaje (faza 2) poboljšalo je mišljenje studenata (ali ne statistički 
znajno) u odnosu na fazu 1, kao što se vidi u tablici 3. Re-

zultati jasno pokazuju da videopredstavljanje podupire i do-

datno povećava uspjeh teorijskog predavanja. 

U ranije provedenom istraživanju s istim izjavama, ali drukčijom metodologijom i procjenom mišljenja studenata o tehnici bezbolne lokalne analgezije za djecu, slične su re-

zultate dobili autori među studentima iz Turske (4). Mišlje-

nje studenata o bezbolnim injekcijama procijenjeno je pri-

je teorijskih, praktičnih i kliničkih edukacijskih aktivnosti i 

poslije njih. Srednje početne vrijednosti za moguće bezbol-

ne injekcije u prije obavljenom istraživanju (n: 116, izjava 1 
= 3,15 i izjava 4 = 61,5) bile su usporedive s ovim istraživa-

njem (n: 62, izjava 1 = 3, 14 i izjava 4 = 60). No konačni re-

zultati prijašnjeg istraživanja za izjave 1 i 4 (3,62 i 79,6) mo-

gli su se usporediti s rezultatima postignutima nakon faze 2 
(faza 3,56 i 70,24). Zato se može zaključi- 

čiti da je videoprezentacija u ovom istraživanju slično utječu na promjenu mišljenja u odnosu prijašnjoj aktivnosti koja je uključivala praktične i kliničke faze, uz dodatno teo-

rijsko predavanje praćeno videomaterijalom.

Iako videoprezentacija kao pomoćno sredstvo u stomato-

loškoj nastavi nije nova metoda, ovo istraživanje upućuje na potencijal koji ima u poučavanju jer omogućuje uštedu vre-

mena i novca u usporedbi s tradicionalnom nastavom. Treba 
također napomenuti da je ovo istraživanje prvo u kojemu se 
analizira učinkovitost videoprezentacije na promjenu mišlje-
nja jer su se dosadašnja bavila njezinim učinkom na znanje i 
vještinu (24 – 35).
Zaključci

Iako je prva faza, tj. teorijsko predavanje, imala statistički znatan utjecaj na promjenu mišljenja o bezbolnim injekcijama za djecu, druga faza – videoprezentacija – također je bila razmjerno uspješna i podupirala je promjenu mišljenja studenata dentalne medicine.

Sukob interesa

Autori navode da nisu bili u sukobu interesa.

Abstract

Aim: To evaluate the effectiveness of video assisted lecture in changing the opinions of dental students toward pain-free dental injections in children. Methods: The fifth-year students (n:62) of University of Medicine of Tirana, Faculty of Dental Medicine participated in the study. The study was conducted in two stages: first a Theoretical lecture (Stage 1), “Pain-free Local Analgesia Techniques in Children” was provided, and was followed by a second lecture supported by video recordings of real clinical cases (Stage 2). Students’ opinions were evaluated by means of a short survey administered before the lectures, after the theoretical lecture, and after the video assisted lecture. Results: Before the study, only 47.9% of students believed in the possibility (agree and definitely agree) of pain-free local anaesthesia in children, whereas after the study, the percentage had risen to 67.7% (p=0.0001). Baseline opinions of students changed significantly after the video-assisted lecture (p=0.0001). However, there is no statistical difference between mean scores of theoretical lecture (Stage 1) and video-assisted lecture (Stage 2). Conclusions: Theoretical lecture (Stage 1) was found to be significantly effective in changing the opinions regarding “Pain-free dental injections in children,” however, a video based dental education (Stage 2) was found to be relatively effective in supporting the change in dental students’ opinion.

Conclusions

While first stage – theoretical lecture was found to be significantly effective in changing the opinions regarding “Pain-free injections in children”, the second stage – the video-assisted lecture was found to be relatively effective. Also, it supports the change in the dental students’ opinion.

Conflict of interest

The authors declare no conflicts of interests.

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