EVALUATION OF ACUPUNCTURE AS A MODALITY IN PAIN RELIEF IN THREE DENTAL PROCEDURES –AN INTERVENTIONAL STUDY

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In partial fulfillment of the requirements
for the degree of

MASTER OF DENTAL SURGERY

BRANCH VII

PUBLIC HEALTH DENTISTRY

THE TAMILNADU DR. MGR MEDICAL UNIVERSITY

CHENNAI – 600 032

2010 – 2013

CERTIFICATE

This is to certify that this dissertation submitted by **DR. V.BRINDAA LAKSHMI** (2010 – 2013 Batch), Post Graduate Student, Department of Public Health Dentistry, titled "**Evaluation of acupuncture as a modality in pain relief in three dental procedures –An interventional study** " was carried out under my guidance in partial fulfilment of the regulations laid down by the **Tamilnadu Dr. M.G.R. Medical University,** Chennai for M.D.S in **Public Health Dentistry** (Branch VII) degree examination.

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I am grateful to **GOD ALMIGHTY**, without whose blessings I would not have been what I am t

INSTITUTIONAL ETHICAL COMMITTEE

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And

Dr.M.B.Aswath Narayanan B.Sc., MDS., aged 47 years working as Professor and Head of the Department of Public Health Dentistry at the College, having residence address at "Mathuram", Plot No: 161, No: 5, Murugu Nagar, 5th street, Velachery, Chennai – 42 (herein after referred to as the 'Researcher and Principal investigator')

And

Dr. V. Brindaa Lakshmi aged 25 years currently studying as Post Graduate Student in the Department of Public Health Dentistry at the college (herein after referred to as the 'PG/Research student and Co- investigator').

Whereas the 'PG/Research student as part of her curriculum undertakes a research on the study titled "**Evaluation of Acupuncture as a modality in pain relief in three dental procedures – an interventional study**" for which purpose the Researcher and Principal investigator shall act as Principal investigator and the College shall provide the requisite infrastructure based on availability and also provide facility to the PG/Research student as to the extent possible as a Co-investigator

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College represented by its Principal Student Researcher

Witnesses Student Guide

1.

2.

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LIST OF ABBREVATIONS

C.I-Confidence Interval

CV-Conception vessel channel

EA-Electro Acupuncture

G.V-Governing Vessel channel

L.I-large Intestine channel

MRI-Magnetic Resonance Imaging

NSAIDs-Non Steroidal Anti Inflammatory Drugs

n- Sample Size

PET-Positron Emission Tomography

PCA-Patient Controlled Analgesia

Qi-Chi

R.R-Relative Risk

St-Stomach channel

S.I-Small Intestine channel

VAS -Visual Analogue Scale

ABSTRACT

AIM

To determine the effectiveness of acupuncture as a modality in pain relief in three dental procedures.

MATERIALS AND METHODS

The study comprised of 183 patients, indicated for extractions, endodontic treatment, and fixed orthodontic treatment as well as those reporting with post operative pain after the above mentioned treatment procedures. Study samples are categorized into three groups and two subgroups based on their need of pain control. The study procedure was explained and informed consent obtained from the patients. Ethical clearance was obtained from institutional review board. Demographic profile, detailed history of pain, medical history, dental history, and drug history was recorded using a standardized case record. Immediately after the above mentioned dental procedures, acupuncture treatment was performed for 20 minutes with manual stimulation at 0, 10, and 20 minutes. Pain assessment at baseline and after acupuncture intervention is done using visual analogue scale (VAS). Patients were asked to report the duration of pain free period on the next day using visual analogue scale to be marked by the patient every 1hour interval beginning after acupuncture treatment till the time of analgesic intake. And they were advised with a standard oral analgesic (Paracetamol, 500mg for every 6hrs) to be taken when pain develops.

RESULTS

This study showed that acupuncture had produced greater pain relief in 70% of the participants following extraction, 43% of participants following endodontic treatment, 30% following orthodontic treatment, 20% with post extraction pain, 56.7% with post endodontic pain and 46.3% with post orthodontic pain. Around 36.6% of the participants following extraction, 25.6% following endodontic treatment, 0.2% following orthodontic treatment did not take analgesics whereas 22.5% of those with post extraction pain, 0.1% in post endodontic pain and 0.2% with post orthodontic pain did not take analgesics following acupuncture.

CONCLUSION

The result of the above study indicates that acupuncture has significant effect on pain control and also reduced the analgesic intake. Thus, it can be widely used as an adjunctive therapy for pain control after dental treatments, especially in patients who are allergic or contraindicated to drugs, without any adverse effects.

KEYWORDS: Acupuncture, Postoperative pain, Dental procedures.

INTRODUCTION

Pain is an unpleasant experience that motivates the patient to seek dental care[1]. After rendering necessary treatment to treat pain, analgesics like NSAIDS (Non steroidal Anti Inflammatory drugs), opioids are prescribed to provide symptomatic relief[2]. But analgesic intake can cause a host of undesirable side effects such as gastrointestinal distress, dizziness, headache, and the risk of adverse effects increases with the prolonged and inadvertent use causing permanent damage to liver and kidneys[3].

The routine dental procedures which normally require prescription of analgesics after treatment include[4, 5, 6]

1. Dental extraction

2. Endodontic treatment

3. Fixed Orthodontic treatment

Acupuncture, one of the ancient alternative therapeutic modes for the treatment of various conditions such as headache, migraine, trigeminal neuralgia, sinusitis, toothache has been proven effective in controlling pain especially post operative pain in dentistry, in previous studies[7].

This technique involves insertion of sterile disposable acupuncture needles in the “local points” situated around the site of pain and “distal point” away from the site of pain (Points of lowered electrical resistance) and retained in place for a total period of 20 minutes with manual stimulation (by twisting the needle) at 0, 10, and 20 minutes.

A classical explanation on how acupuncture works is that channels of energy or "Qi" runs in patterns through the surface of the body. Any obstruction in the flow of these energy channels creates pain and disease. When the acupuncture points are stimulated in these meridians, energy channels are influenced and a healthy flow is re-established[7].

Scientific evidence reveals that by stimulating specific points on or near the skin surface, there is an increase of endomorphin-1, beta endorphin, encephalin, serotonin, and dopamine in plasma and brain which causes analgesic effect.[8]

Recent studies have also shown that acupuncture has been reported to result in the release of the calcitonin gene-related peptide and vasoactive intestinal polypeptide- neuropeptides in plasma with anti-inflammatory and anti apoptotic properties.[8]

Various studies conducted so far proved that acupuncture is effective in

controlling post operative pain[9-20], for smoking cessation[21,22], trigeminal neuralgia[23], altering the gag reflex[24,25], for treating temporomandibular joint disorders[26,27] , for treating dental anxiety[28].

Studies to evaluate effectiveness of acupuncture on pain control following various dental treatments were minimal. Hence, this study aims with the use of acupuncture as a mode of pain control in three dental procedures.

AIM & OBJECTIVES

AIM

To determine the effectiveness of acupuncture as a modality in pain relief in three dental procedures.

OBJECTIVES

1. To assess the pain free period after treatment in patients who come for extractions, endodontic treatment, orthodontic treatment, using the visual analogue scale.

2. To assess the intensity of pain at baseline and after acupuncture intervention using the visual analogue scale in patients who come with post operative pain in the above three treatment procedures,

3. To assess the effectiveness of acupuncture in pain control in three dental procedures and if favourable, the results can be extrapolated in public health programmes.

REVIEW OF LITERATURE

HISTORY OF ACUPUNCTURE

Acupuncture has been practiced in **ancient China since 2500 BC**. Its concept is based on Yin and Yang theory which postulates that the positive (Yin) and negative forces (Yang) have to be balanced for good health to exist. It is also believed that river of energy (Qi) flows through our body in channels (meridians). Any block in this flow will cause disease. Acupuncture is used as a therapy to restore the balances of Yin and Yang and the flow of Qi.

Research on acupuncture started only after the People's Republic of China was established and Mao Zedong encouraged the practice of acupuncture in the country in 1949. The results of this therapy remained unknown to most physicians.

A surge of interest in acupuncture arose in the United States after **President Nixon's visit to China in 1971** when he developed acute appendicitis. His postoperative pain was treated with acupuncture, and it was published on the front page of the New York Times.

Subsequently, American and European physicians visiting China witnessed surgeries being performed with acupuncture anesthesia. Enormous

research on acupuncture started in 1976 after the endorphin hypothesis of acupuncture was introduced. Further development in acupuncture research was prompted by introduction of Magnetic Resonance Imaging (MRI) and Positron Emission Tomography (PET) scanning which revealed the mechanism of acupuncture stimulation and activation of certain brain structures.

The **World Health Organization** issued a list of medical conditions that may benefit from treatment with acupuncture which includes prevention and treatment of postoperative pain and chemotherapy induced nausea and vomiting, treatment of pain, alcohol and other drug addiction therapy, treatment of asthma and bronchitis, and rehabilitation from neurological damage such as that caused by stroke. Food and Drug Administration removed acupuncture needles from the category of "experimental medical devices" and regulates them like other medical devices[14].

Palle Rosted in 1994, listed some of the conditions which may respond to acupuncture in either the medical or dental surgery, include pain in teeth, anesthesia /analgesia, pain in relation to the teeth, problems with the bite, neuralgia related to teeth, sinusitis, osteoarthritis of the mandibular joint, hyper salivation and stomatitis. Acupuncture techniques of greatest use in tooth and facial pain: Body acupuncture, Ear acupuncture, Electro acupuncture , Trigger point acupuncture[12].

CLINICAL TRIALS

Sung Y.F et al in 1977 compared the effects of acupuncture and codeine on post operative pain among 30 subjects. And found greater and early pain relief in acupuncture group for more than 2 and half hours[10].

Lixing Lao et al in 1999 evaluated acupuncture for pain control after oral surgery, using a placebo-controlled trial among 39 healthy subjects, aged between 18 to 40 years, assigned to treatment (n = 19) and control (n = 20) groups. The mean pain-free time is greater in acupuncture group (172.9 ± 25.4min) than in the placebo group (93.8 ± 16.5min)[29].

Wu MT et al in 1999 performed an experimental study using fMRI to determine the central nervous system pathway for acupuncture stimulation, and it was found that acupuncture activates structures of descending antinociceptive pathway and deactivates areas mediating pain modulation[30].

Lee B et al in 1999 did many animal studies and assessed that acupuncture has been found to significantly reduce anxiety-like behaviour, and increase brain levels of neuropeptide Y[31].

John L Stump et al in 2006 performed a prospective cohort study among 55 patients reporting with uncontrolled pain for 4 conditions such as

arthritis, neuropathy, intractable pain, or pain from strain/sprain injury. Patients were treated each week (once or twice weekly) with a 500-mW laser at specific acupuncture points for 9 weeks. Initially, all patients rated their pain as 8-9 on the McGill questionnaire. There was a reduction of pain in all conditions after the first 3weeks in all groups. There was further reduction after the next 3weeks, but less during the last 3weeks. A follow-up investigation after 6 months still found reduced pain in each group[35].

Chunbo Cai in 2006 evaluated the effectiveness of acupuncture in patients with chronic back pain and neck pain with scalp acupuncture. Relief of pain took place within 10 to 20minutes into treatment. The degree of pain reduction ranged from 40% to 100% at the end of a 30-minute treatment. The mean VAS scores were significantly improved from 6.4/10 to 2/10 in chronic back pain cases, and 5.5/10 to 1/10 in neck pain cases[36].

Marconi Gonzaga Tavares et al in 2007 , evaluated electro-acupuncture efficacy on pain control after mandibular third molar surgery and found that postoperative pain VAS scores were significantly lower for the electro acupuncture group and analgesic intake significantly decreased for all

evaluated periods. Therefore, EAC therapy is efficient in controlling postoperative pain following mandibular third molar surgery[18].

Parthasarathy and Ravishankar in 2009 conducted a randomized controlled trial to assess acupuncture as a preemptive analgesic technique in surgery. Among 50 patients who underwent inguinal herniorraphy under intrathecal lignocaine were assigned to pre-emptive acupuncture or no acupuncture. The outcome variables that are assessed were intra operative sedation, post-operative pain scores, post-operative sedation, analgesic requirement and side effects. It was found that the intra-operative sedation was significantly better and post-operative pain scores and analgesic requirements were significantly less in the acupuncture group. There were no side effects in any of the patient. Therefore, pre-emptive acupuncture technique can be safely and effectively used as a post-operative analgesic technique[32].

Wu HC et al. in 2009 conducted a randomized controlled trial to find out the effects of acupuncture or electro-acupuncture (EA) on post-caesarean pain. Among 60 women, who underwent caesarean section under spinal anesthesia, were randomly assigned to the control group, the acupuncture group, and the EA group after surgery. The results showed that acupuncture and EA delayed the time of morphine intake by up to 10-11 minutes when compared with the control group. The pain scores in EA group and the acupuncture group were significantly lower than the control group in the first 2 hours. Finally, the incidence of opioid-related side effects, such as dizziness,

was less in the acupuncture and EA groups than in the control group. There was no significant difference between the acupuncture group and the EA group. The researchers concluded that the acupuncture and electro-acupuncture could definitely delay the time of requesting analgesic medication after caesarean section and decrease the PCA doses used within the first 24 hours[33].

Grube T et al in 2009 conducted a randomized controlled trial that compared acupuncture with metamizole and a control group for the treatment of post-operative pain and nausea in 66 patients who had had hysterectomy and cholecystectomy. All patients received patient controlled analgesia (PCA) using piritramide. The outcome variables that are measured were pain intensity, analgesic consumption, and frequency of nausea and vomiting in a period up to the morning of the second post-operative day. The acupuncture group reported significantly less pain, nausea, and vomiting compared to the control group. Piritramide consumption was significantly lower in the acupuncture group (25.0 mg) than in the metamizole group (34.5 mg) and the control group (55.2 mg). This study proves that acupuncture may be effective in postoperative pain relief, and the treatment of nausea and vomiting in the postoperative period[34].

Sahmedddini M A et al in 2010 conducted a randomised controlled trial to compared electro-acupuncture (EA) with morphine for acute post-operative pain in 90 patients undergoing nasal septoplasty. The time of

analgesic intake and pain intensity (on a100-mm visual analogue scale) were assessed , and the amount of post-operative meperidine and incidence of analgesia related adverse effects were recorded. Postoperative pain intensity were similar in both groups. Postoperative meperidine was not needed in either group The study concluded that EA and morphine given intra-operatively resulted in a similar post-operative pain score and analgesic request[20].

SYSTEMATIC REVIEWS

Ernst and Pitter in 1998 reviewed around 12 trials done to determine acupuncture efficacy on acute dental pain and found that acupuncture is more effective than controls[37].

Rosted in the year 1998 assessed effectiveness of acupuncture in temperomandibular dysfunction in 15 RCT. Most of the studies were with methodological problems. Around 11 out of 15 trials have shown positive results. But the effect in temperomandibular dysfunction seems real[37].

Ushichenko Ti et al in 2008 reviewed nine randomized clinical trials on the treatment of postoperative pain with auricular acupuncture. The outcome variables that are measured were pain intensity and analgesic requirements. In eight of the trials, auricular acupuncture was superior to control conditions but

many of the trials had methodological problems. Hence it was concluded that auricular acupuncture reduces postoperative pain is promising but not compelling[38].

Sun Y et al in 2008 reviewed the efficacy of acupuncture and related techniques adjunctive analgesics for acute post-operative pain management. Fifteen randomized controlled trials comparing acupuncture with sham control were analysed. Mean difference for analgesic consumption in favour of acupuncture was -3.14 mg (95% CI -5.15 to -1.14), -8.33 mg (95% CI -11.06 to -5.61), and -9.14 mg (95% CI -16.07 to -2.22) at 8, 24, and 72 hours, respectively. Post-operative pain intensity (visual analogue scale) was also significantly decreased in the acupuncture group at 8 and 72 hours compared with the control group. The acupuncture treatment group was associated with a lower incidence of opioid-related side effects such as nausea (relative risk [RR] 0.67, 95% CI 0.53 to 0.86), dizziness (RR 0.65, 95% CI 0.52 to 0.81), sedation (RR 0.78, 95% CI 0.61 to 0.99), pruritis (RR 0.75, 95% CI 0.59 to 0.96), and urinary retention (RR 0.29, 95% CI 0.12 to 0.74). Hence it was concluded that perioperative acupuncture may be a useful adjunct for acute postoperative pain management.

MATERIAL AND METHODS

STUDY DESIGN:

An Interventional study

SAMPLE:

The study participants are categorized into three groups namely Group A, B and C and two subgroups 1 & 2 in each group based on their need of pain control .They are

Group A: Dental extraction group

A1: Immediately after extraction

A2: Patients reporting with post extraction pain

Group B: Endodontic Treatment group

B1: Immediately after endodontic treatment

B2: Patients reporting with post endodontic pain

Group C: Fixed Orthodontic Treatment Group

C1: Immediately after orthodontic treatment

C2: Patients reporting with post orthodontic pain

SAMPLE SIZE:

The total sample size is 183 with 61 samples in each group.

ETHICAL CLEARANCE

This study was approved by Institutional Review Board of Tamil Nadu

Government Dental College & Hospital.

DURATION OF THE STUDY:

The duration of the study was 6 months (April 20th -September 30th 2012).

INFORMED CONSENT:

The study procedure was explained to the patients and written informed consent (bilingual) was obtained.

INCLUSION CRITERIA:

1. Patients indicated for extractions

2. Patients indicated for endodontic treatment reporting with preoperative pain with or without periapical lesion.

3. Patients reporting with pain immediately after

a. Separator placement

b. Fixing/Activation of fixed orthodontic appliance

4. Patients reporting with post extraction pain

5. Patients reporting with post endodontic pain

6. Patients reporting with pain after 24 hours of

a. Separator placement

b. Fixing/Activation of fixed orthodontic appliance

EXCLUSION CRITERIA:

1. Presenting with any other underlying cause.

2. History of analgesic intake 6-8hrs before extraction, endodontic treatment or appliance placement/activation.

GENERALISED EXCLUSION CRITERIA:

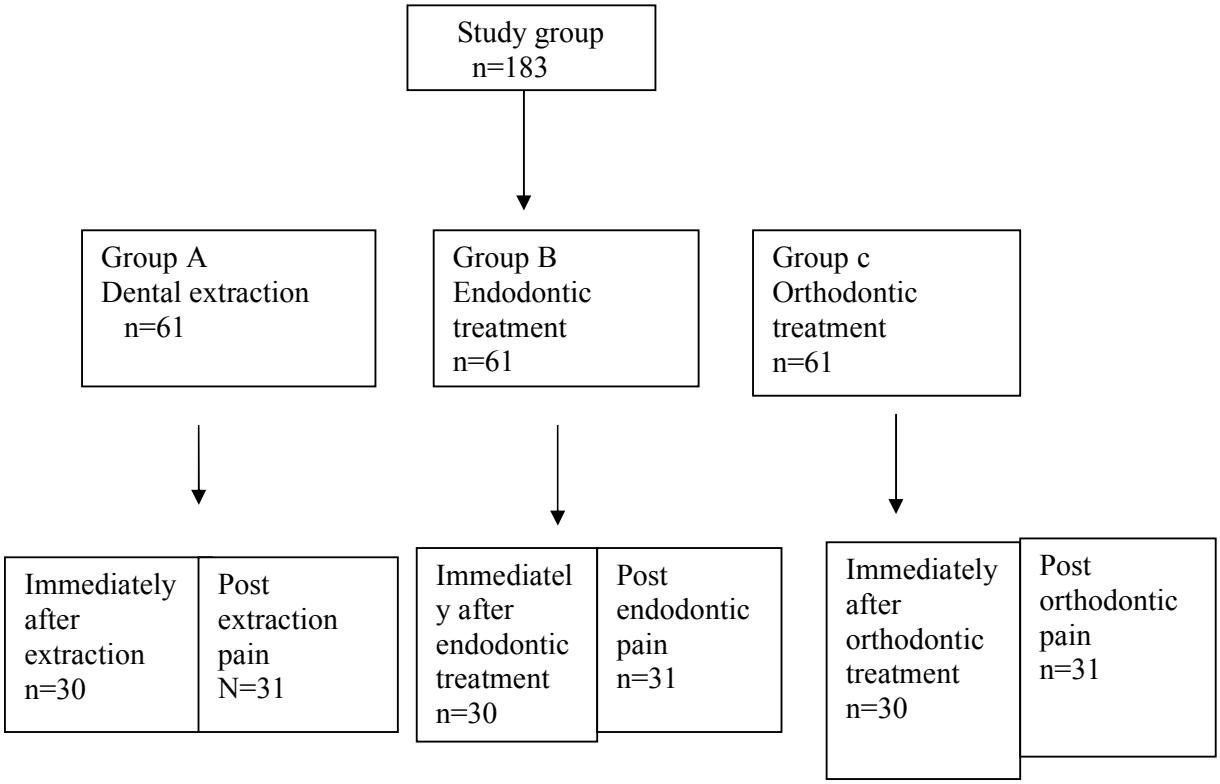
1. Pregnancy

2. Hemorrhagic diathesis

3. Alcoholics

4. Adults above 80 years of age

Fig.1.STUDY FRAMEWORK



MATERIALS USED

CASE RECORD:

To record demographic profile, detailed history of pain, medical history, dental history and drug history. Clinical examination was done to assess the pain related cause and the condition.

ARMAMENTARIUM USED

1. CLINICAL EXAMINATION

Universal precautions were taken and type III clinical examination done using head cap, mouth mask, disposable gloves, goggles, mouth mirror, sickle shaped explorer, cotton and holder, stainless steel rectangular tray.(Photograph.1)

2. ACUPUNCTURE TREATMENT

A.CUNOMETER

An instrument used to locate acupuncture points. A cun is the distance between the interphalangeal creases of the middle finger of the patient or the breadth of the thumb at the level where it is widest[43]. (Photograph.1)

B.SURGICAL SPIRIT (70% alcohol)

Used as a skin disinfectant prior to acupuncture needle insertion. (Photograph.1)

C.STERILE DISPOSABLE ACUPUNCTURE NEEDLES

Sterile, disposable acupuncture needles measuring 0.25×13mm made by Suzhou tianxie were used for the acupuncture treatment[43]. (Photograph.1)

D.VISUAL ANALOGUE SCALE (VAS)

Valid method to measure pain severity and pain relief. Visual analogue scale is a 10 cm scale with markings at one end as no pain and the other end as worst pain. Patients have to mark a line indicating their pain intensity [40,41,42] (Photograph.2)

Pain score

0 - No Pain

30 mm or less- Mild

31-69mm –Moderate

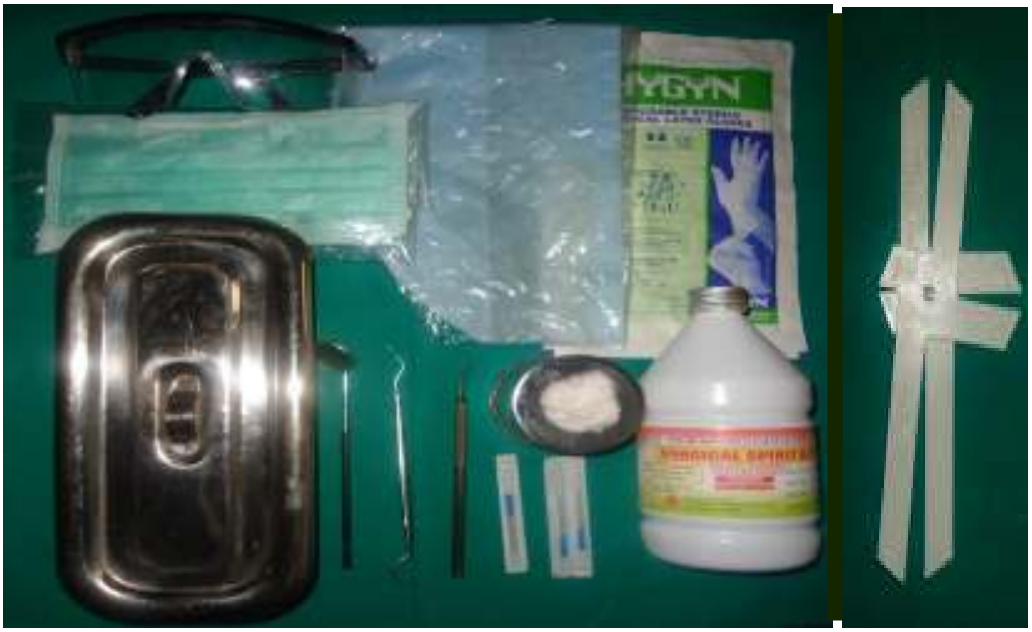
70 mm or more- Severe

100 mm- Worst Pain

Less than 12 m change in pain severity – No clinical significance.

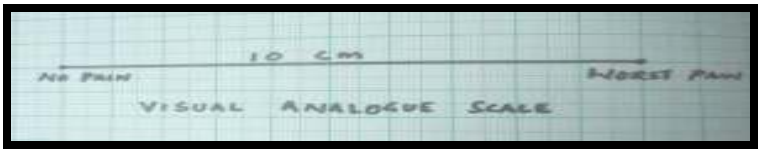
More than 12mm change in pain severity-clinical significance.

PHOTOGRAPH.1.ARMAMENTARIUM



1.Head cap
2.Mouth mask
3.Disposable gloves
4.Goggles
5.Mouth mirror
6.Sickle shaped explorer
7. Cotton and holder
8. Stainless steel rectangular tray
9. 70% alcohol-As a skin disinfectant
10. Sterile disposable acupuncture needles
11.Cunometer

PHOTOGRAPH.2.VISUAL ANALOGUE SCALE FORM



METHODOLOGY:

Subgroup 1:

In patients who had undergone extraction of teeth, endodontic treatment and fixed orthodontic treatment, Acupuncture treatment will be performed immediately after the dental procedure by the trained acupuncturist. This technique involves acupuncture needles insertion at (i) Local points situated around the site of pain and (ii) Distal point away from the site of pain (Points of lowered electrical resistance) and needles are retained in place for a total period of 20 minutes with manual stimulation (by twisting the needle) at 0, 10, and 20 minutes. (Photograph.5-14)

Subgroup 2:

Patients reporting with post extraction pain, post endodontic pain and post orthodontic pain as the chief complaint and who require only analgesics as the mode of treatment will be included for acupuncture intervention. The same procedure as discussed above will be performed. (Photograph.5-14)

Outcome assessment:

Pain assessment is done using visual analogue scale before and after the treatment. Patients have to mark a line indicating their pain intensity[8].

Follow up:

This study involves 1 day follow up wherein, following the next day of treatment, participants have to report the duration of pain free period in the visual analogue scale form marked at every 1hour interval till the time of analgesic intake. All the participants are advised with a standard oral analgesic (Paracetamol, 500mg for every 6hrs) to be taken if pain develops.

STATISTICAL ANALYSIS:

Statistical analyses of pain scores in all groups were done using SPSS 17.The mean duration of pain free period in all the groups were compared using one way ANOVA and post hoc test done using tukey test.Analysis of pain intensity scores before and after acupuncture intervention were done using paired ‘t’ test.

ACUPUNCTURE TREATMENT PROCEDURE

Analgesic points for Maxillary region (Fig.2-5)[44]

Local points:Anterior teeth(Gv 26, L.I 19, L.I 20),Posterior teeth (S.I 18, St. 7)

Distal point: L.I 4

Gv 26-located at the junction of the upperthird and lower two thirds of the philtrum of the upperlip, in the midline.

L.I 19-0.5 cun lateral to point Gv26, after the channel has crossed the midline.

L.I 20- located in the horizontal line drawn from on the outermost point of the ala of the nose on the naso labial groove.

S.I 18- located in the depression below the prominence of the zygomatic bone on a vertical line drawn from the outer canthus of the eye.

St.7- located in the depression on the lower border of the zygomatic arch.

L.I 4-located in the web between the forefinger and thumb on the dorsal aspect of the hand.

Analgesic points for Mandibular region (Fig.6,7)[44]

Local points: Anterior teeth (Cv 24), Posterior teeth (St. 5, St. 6)

Distal point: L.I 4

Cv.24- located in the middle of the mentolabial groove, in the depression between the point of the chin and midpoint of the lower lip.

St.5- located at the lowest point of the anterior border of the masseter muscle.

St.6- located at the most prominent part of the masseter muscle, felt on clenching the jaws.

ACUPUNCTURE POINTS FOR UPPER AND LOWER JAW

Fig.2 Upper Central Incisor- Gv26

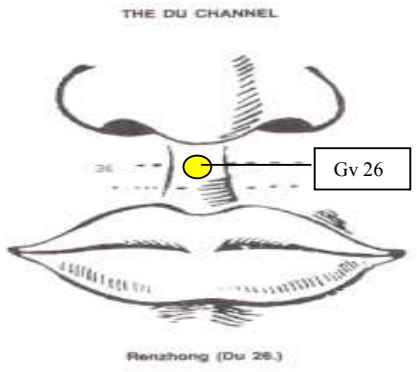


Fig.3.Upper Lateral and Canines-Li19, Li20

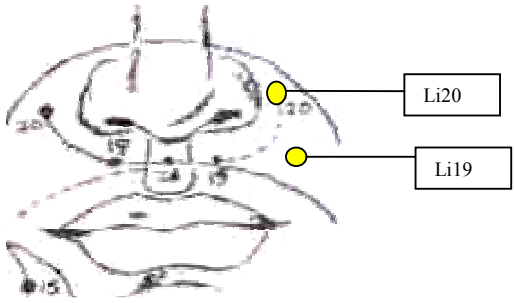


Fig.4 Upper Premolars- Si 18

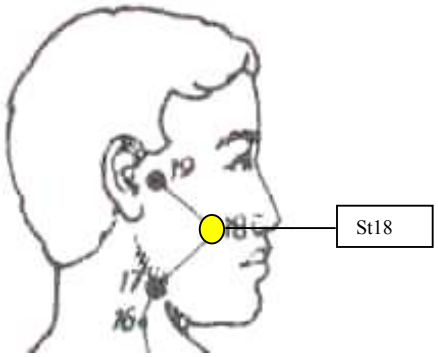


Fig.5 Upper Molars-St 7

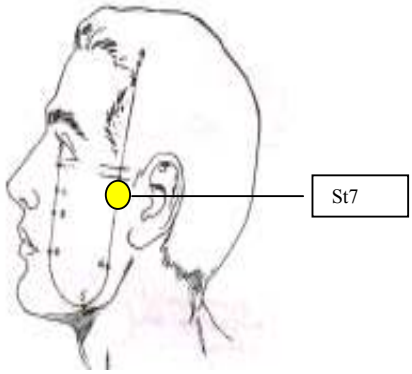


Fig.6 Lower Anteriors – Cv 24

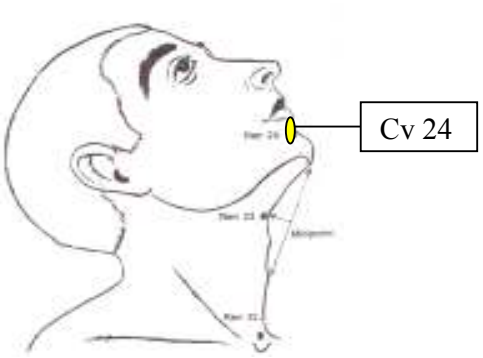


Fig.7 Lower Posteriors-St.5, St 6

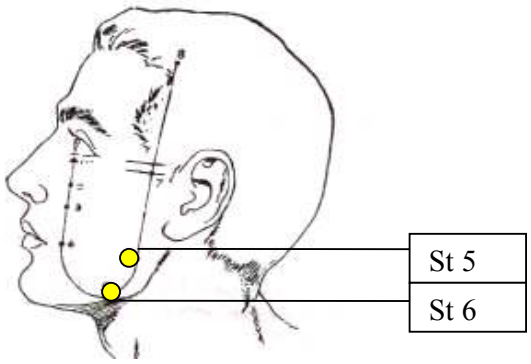


TABLE.1. TREATMENT DETAILS OF PATIENTS IN GROUP A1 (IMMEDIATELY AFTER EXTRACTION)

S.no	O.P.no.	Age	Gender	Tooth no.	Acupuncture treatment	Time of acupuncture	Time of analgesic intake	Duration of pain free period (in hours)
1	16792	38	M	46	Du 20,st6,li 4	11.15am	6pm	6.45
2	15543	23	F	46	Du 20,st6,li4	10.30am	9pm	10.3
3	29510	63	M	28	Du 20,st7,li4	9.20 am	No analgesic	Permanent
4	35711	51	F	35	Du 20,si18,li4	9.10 am	No analgesic	Permanent
5	34856	26	M	18	Du 20,st7,li4	10.45 am	No analgesic.	Permanent
6	10820	25	F	16	Du 20,si18,li4	10.40 am	Next day	24
7	38593	26	M	27	Du 20,st 7,li4	9.45 am	4:00 pm	6.15
8	36424	16	M	16	Du 20,si18,li4	10.15 am	1.00 pm	2.45
9	39123	25	M	36	Du 20,st 6,li4	9.30 am	No analgesic	Permanent
10	40415	26	M	47	Du 20,st6, li4	10.30am	3.15pm	4.45
11	40121	30	M	26	Du 20,si18 li4	11.20 am	2.10 pm	2.5
12	40617	31	M	18	Du 20,st7 li4	9.30 am	4:00 pm	6.3
13	41842	20	F	55	Du 20,st5 li4	10.00 am	No analgesic	Permanent
14	22826	25	M	17	Du 20,st7 li4	12.10 am	6pm	5.5
15	41579	35	M	17	Du 20,st7 li4	12.10 am	No analgesic	Permanent
16	40660	50	M	16	Du 20,si18 li4	9.10 am	No analgesic	Permanent
17	42086	20	M	55	Du 20,si18 li4	10:00 am	No analgesic	Permanent
18	31059	20	F	65,75	Du 20,si18 li4	11:00 am	No analgesic	Permanent
19	42748	18	F	46	Du 20,st5 li4	9.35 am	9:00 pm	10.25
20	17562	55	M	16	Du 20,si18 li4	9.10am	2nd day	24
21	40004	55	M	18	Du 20,st7 li4	9.25 am	No analgesic	Permanent
22	32862	30	M	16,46	Du 20,si18,st li4	8.50am	10pm	12
23	43954	43	F	18	Du 20,st7 li4	9am	8.30pm	11.3
24	41315	55	M	46	Du 20,st6 li4	9.10am	After 2 days	24
25	46859	30	M	48	Du 20,st6 li4	9.20am	1pm	3.4
26	44423	32	M	25	Du 20,si18 li4	11.15am	5pm	5.45
27	44429	65	M	15	Du 20,si18 li4	9am	No analgesic	Permanent
28	09666	54	F	38	Du 20,st6 li4	11.50am	7pm	7.1
29	45434	24	M	36	Du 20 ,st6li4	11.50am	10pm	10.1
30	40623	43	M	17	Du 20,st7 li4	10.40am	1pm	2.2

TABLE.2. TREATMENT DETAILS OF PATIENTS IN GROUP B1 (IMMEDIATELY AFTER ENDODONTIC TREATMENT)

S.no	O.P.no	Age	Gender	Tooth no	Acupuncture treatment	Time of acupuncture	Time of analgesic intake	Duration of pain free period (in hours)
1	43077	32	M	35	Du20,st5,li4	11.10am	4pm	4.5
2	44636	48	F	46	Du20,st6, li4	11am	5pm	6
3	44994	22	F	15	Du20,si18, li4	10.40am	12pm	1.2
4	43355	26	F	24	Du20,li20 li4	12pm	3pm	3
5	46577	14	M	32	Du20,cv24 li4	10.30am	6pm	7.3
6	105405	19	M	36	Du20,st6 li4	11am	4.20pm	5.2
7	46609	18	F	46	Du20,st6 li4	12am	4pm	4
8	44801	24	M	16	Du20,si18 li4	11.40am	5pm	5.2
9	44255	43	F	17	Du20,st7 li4	11.30am	6pm	6.3
10	40623	36	M	12	Du20,li19 li4	11.20am	5pm	5.4
11	41254	32	F	16	Du20,si18 li4	11am	6pm	7
12	48470	27	F	26	Du20,si18 li4	10.40am	8pm	9.2
13	45738	55	M	36	Du20,st6 li4	10.45am	No analgesic	Permanent
14	46803	62	F	37	Du20,st6 li4	11.45am	5pm	5.15
15	48847	22	F	23	Du20,li20 li4	11.50am	8pm	8.1
16	44578	19	M	13	Du20,li20 li4	12pm	4pm	4
17	45559	57	M	26	Du20,si18 li4	1.20pm	No analgesic	Permanent
18	48136	23	M	27	Du20,st7 li4	10am	6pm	8
19	50654	32	M	16	Du20,si18 li4	11am	No analgesic	Permanent
20	52464	25	F	15	Du20,si18 li4	12pm	4.20pm	4.2
21	46503	16	F	26	Du20,si18 li4	12.20pm	5.30pm	5.1
22	50960	32	M	35	Du20,si18 li4	11am	No analgesic	Permanent
23	46250	18	M	36	Du20,st6 li4	12.25pm	No analgesic	Permanent
24	50652	19	M	36	Du20,st6 li4	11.30am	No analgesic	Permanent
25	50501	36	M	11	Du20,gv26 li4	10.30am	Next day	24
26	101928	24	M	11	Du20,gv26 li4	10.45am	No analgesic	Permanent
27	26543	23	M	14	Du20,li20 li4	10.50am	7pm	8.1
28	53127	41	M	12	Du20,li19 li4	11.30am	No analgesic	Permanent
29	108234	19	M	26	Du20,si18 li4	12.30pm	6pm	5.3
30	12467	14	F	37	Du20,st6 li4	10.30am	1pm	2.3

TABLE .3**TREATMENT DETAILS OF PATIENTS IN GROUP C1 (IMMEDIATELY AFTER ORTHODONTIC TREATMENT)**

S.no	O.P.no	Age	Gender	Tooth no	Acupuncture treatment	Time of acupuncture	Time of analgesic intake	Duration of pain free period (in hours)
1	43077	32	M	35	Du20,st5,li4	11.10am	4pm	4.5
2	44636	48	F	46	Du20,st6, li4	11am	5pm	6
3	44994	22	F	15	Du20,si18, li4	10.40am	12pm	1.2
4	43355	26	F	24	Du20,li20 li4	12pm	3pm	3
5	46577	14	M	32	Du20,cv24 li4	10.30am	6pm	7.3
6	105405	19	M	36	Du20,st6 li4	11am	4.20pm	5.2
7	46609	18	F	46	Du20,st6 li4	12am	4pm	4
8	44801	24	M	16	Du20,si18 li4	11.40am	5pm	5.2
9	44255	43	F	17	Du20,st7 li4	11.30am	6pm	6.3
10	40623	36	M	12	Du20,li19 li4	11.20am	5pm	5.4
11	41254	32	F	16	Du20,si18 li4	11am	6pm	7
12	48470	27	F	26	Du20,si18 li4	10.40am	8pm	9.2
13	45738	55	M	36	Du20,st6 li4	10.45am	No analgesic	Permanent
14	46803	62	F	37	Du20,st6 li4	11.45am	5pm	5.15
15	48847	22	F	23	Du20,li20 li4	11.50am	8pm	8.1
16	44578	19	M	13	Du20,li20 li4	12pm	4pm	4
17	45559	57	M	26	Du20,si18 li4	1.20pm	No analgesic	Permanent
18	48136	23	M	27	Du20,st7 li4	10am	6pm	8
19	50654	32	M	16	Du20,si18 li4	11am	No analgesic	Permanent
20	52464	25	F	15	Du20,si18 li4	12pm	4.20pm	4.2
21	46503	16	F	26	Du20,si18 li4	12.20pm	5.30pm	5.1
22	50960	32	M	35	Du20,si18 li4	11am	No analgesic	Permanent
23	46250	18	M	36	Du20,st6 li4	12.25pm	No analgesic	Permanent
24	50652	19	M	36	Du20,st6 li4	11.30am	No analgesic	Permanent
25	50501	36	M	11	Du20,gv26 li4	10.30am	Next day	24
26	101928	24	M	11	Du20,gv26 li4	10.45am	No analgesic	Permanent
27	26543	23	M	14	Du20,li20 li4	10.50am	7pm	8.1
28	53127	41	M	12	Du20,li19 li4	11.30am	No analgesic	Permanent
29	108234	19	M	26	Du20,si18 li4	12.30pm	6pm	5.3
30	12467	14	F	37	Du20,st6 li4	10.30am	1pm	2.3

TABLE.4.TREATMENT DETAILS OF PATIENTS IN GROUPA2 (POST EXTRACTION PAIN)

S. no	O.P.	Age	Gender	Tooth No.	Acupuncture treatment	Time of acupuncture	Time of analgesic intake	VAS scores								Duration of pain free period (in hours)
								Before	After	1hr	2hr	3hr	4hr	5hr	6hr	
1	60097	40	F	36	Du20,st6, li4	10 am	No analgesic	48mm	20mm	16 mm	10mm	5mm	0	0	0	Permanent
2	64217	60	F	33	Du20,li20 li4	11.10 am	1pm	32mm	18mm	16 mm						1.5
3	47486	55	F	36	Du20,st6 li4	11.50 am	2 pm	32mm	18mm	19 mm	43mm					2.1
4	15279	55	F	36	Du20,st6 li4	12:00 am	7pm	85mm	65mm	48 mm	40mm	30mm	28mm	22mm	Not marked	7
6	52281	70	M	24	Du20,li20 li4	12.30 am	4pm	38mm	14mm	14 mm	19mm	20mm				3.3
7	94331	15	F	27	Du20,st7 li4	10.45 am	1.30pm	20mm	0mm	0mm	10mm					2.4
8	60756	34	M	22	Du20,li19 li4	11.20 am	12.20 pm	80mm	76mm	73 mm						1
9	60690	30	F	25	Du20,li20 li4	9.45 am	No analgesic	42mm	30mm	10 mm	0	0	0	0	0	Permanent
10	56245	70	M	47	Du20,st6 li4	11.15 am	4.15 pm	50mm	38mm	30 mm	20mm	20mm	10mm	32mm		5
11	54893	30	F	27	Du20,si18 li4	11.15 am	2pm	55mm	40mm	30 mm	25mm					2.45
12	52297	57	M	27	Du20,si18 li4	11.40 am	No analgesic	52mm	32mm	20 mm	0	0	0	0	0	Permanent
13	61271	20	M	37	Du20,st6 li4	10.15 am	4:pm	90mm	30mm	20 mm	10mm	0	0	20mm		5.45
14	56376	42	M	48	Du20,st6 li4	10.00 am	1.30pm	40mm	10mm	10 mm	8mm	22mm				3.3
15	23809	61	M	44	Du20,st5 li4	11.15 am	8.30 on next day	59mm	34mm	20 mm	0	0	0	0	0	22
16	56784	22	F	46	Du20,st6, li4	9.30 am	4pm	54mm	30mm	20 mm	16mm	10mm	10mm	20mm	24mm	6.3
17	46288	18	F	26	Du20,si18 li4	10am	No analgesic	45mm	12mm	0	0	0	0	0	0	Permanent
18	46274	25	M	36	Du20,st6,Li4	9.45 am	2 pm	42mm	20mm	20 mm	10mm	10mm	20mm			4.15
20	81762	20	M	27	Du20,si18 li4	10am	9.30 am	55mm	28mm	10 mm	4mm	0	0	0	0	24
21	81543	24	M	14,15	Du20,si18 li4	9.30 am	2nd day	48mm	29mm	10 mm	0	0	0	0	0	24
22	61765	52	M	43.44	Du20,st5 li4	8.15 am	7pm	54mm	20mm	10 mm	2mm	12mm	4mm	20mm	25mm	10.45
23	62513	35	F	48	Du20,st6 li4	9.38 am	10pm	95mm	85mm	80 mm	65mm	43mm	45mm	23mm	21mm	12.3
24	75052	32	F	46	Du20,st6 li4	9.30 am	12pm	40mm	10mm	10 mm	20mm					2.3
25	75037	60	M	46	Du20,st6 li4	8.30 am	No analgesic	68mm	32mm	10 mm	0	0	0	0	0	Permanent
26	68964	60	M	46	Du20,st6 li4	9.45 am	No analgesic	48mm	10mm	10 mm	0	0	0	0	0	Permanent
27	68234	36	F	17	Du20,si18 li4	10.40 am	10pm	69mm	40mm	20 mm	10mm	0	0	0	0	11.2
28	69453	46	M	27	Du20,si18 Li4	10.30 am	No analgesic	54mm	20mm	10 mm	0	0	0	0	0	Permanent
29	68125	64	M	16	Du20,si18 li4	10.15 am	2pm	46mm	24mm	10 mm	12mm	9mm	17mm			3.45
30	67456	54	F	26	Du20,si18 li4	11.30 am	3pm	90mm	52mm	40 mm	38mm	38mm				3.3
31	69712	72	F	16	Du20,si18 li4	9am	7pm	60mm	32mm	20 mm	10mm	14mm	8mm	0	0	10

TABLE.5. TREATMENT DETAILS OF PATIENTS IN GROUP B2 (POST ENDODONTIC PAIN)

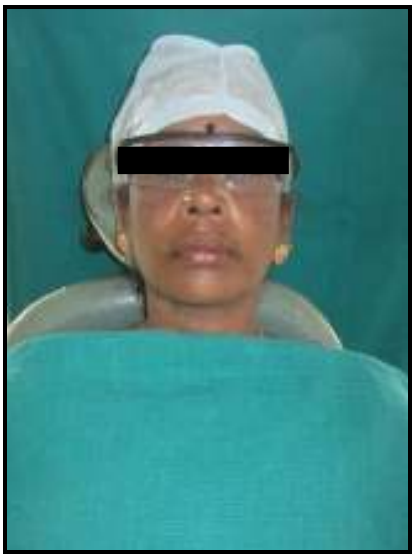
S.no	O.P.no.	Age	Gender	Tooth no.	Acupuncture treatment	Time of acupuncture	Tablet	VAS SCORES								Duration of pain free period (in hours)
								before	after	1hr	2hr	3hr	4hr	5hr	6hr	
10	69743	31	F	16	Du20,Si18,Li4	10am	4.1pm	43mm	30mm	21mm	21mm	12mm	13mm	12mm	11mm	6
2	69924	36	F	16	Du20, Si18,Li4	11am	2.15pm	75mm	71mm	72mm	73mm	73mm				3.15
3	73845	23	M	16	Du20, Si18,Li4	11.15am	2.3pm	45mm	11mm	11mm	11mm	21mm				3.15
4	76460	35	F	25	Du20, Si18,Li4	12am	3pm	49mm	32mm	11mm	12mm	10mm				3
5	76986	17	M	36	Du20,St6,Li4	11.30am	2pm	63mm	51mm	43mm	43mm					2.3
6	76945	18	F	45	Du20,St5,Li4	12pm	1.5pm	58mm	52mm	40mm	32mm					1.5
7	76992	37	F	34	Du20,St5,Li4	11.40am	2.5pm	43mm	41mm	45mm	42mm	46mm				3.1
8	76948	55	F	15	Du20, Si18,Li4	9.4am	1pm	52mm	20mm	10mm	21mm	19mm				3.2
9	78156	61	M	43	Du20,Cv24,Li4	8.30 am	11.15p	40mm	10mm	10mm	16mm	19mm				2.45
10	72578	30	F	16	Du20, Si18,Li4	12pm	12.30pm	74mm	68mm	60mm						0.3
11	72345	47	F	26	Du20, Si18,Li4	8.20am	10am	50mm	42mm	38mm						1.45
12	78242	26	M	47	Du20, St6,Li4	9.5am	12pm	48mm	27mm	20mm	20mm	25mm				2.1
13	72465	22	F	37	Du20, St6,Li4	10.24am	1pm	75mm	56mm	52mm	59mm	59mm				2.7
14	78242	25	F	46	Du20, St6,Li4	7:12 am	2pm	42mm	34mm	21mm	10mm	10mm	10mm	10mm	0	7.12
15	72654	19	F	43	Du20,Cv24,Li4	11am	1.3pm	54mm	53mm	50mm	42mm					2
16	80560	34	M	21	Du20,Li19,Li4	10am	1pm	34mm	20mm	10mm	5mm	0				3
17	80459	23	M	11	Du20,Li19,Li4	9.4am	12pm	38mm	30mm	20mm	10mm					2.6
18	80634	19	M	47	Du20, St6,Li4	12am	3pm	45mm	40mm	28mm	22mm	32mm				3
19	81245	54	M	36	Du20, St6,Li4	11.40am	1.45pm	68mm	58mm	40mm	38mm					2.5
20	81432	35	F	46	Du20, St6,Li4	10am	3pm	45mm	37mm	30mm	21mm	20mm	15mm	10mm		5
21	80435	41	M	47	Du20,St6,Li4	11.30am	5pm	52mm	40mm	32mm	30mm	30mm	25mm	19mm		5.3
22	80466	28	M	15	Du20,Si18,Li4	12pm	No Analgesic	34mm	21mm	19mm	10mm	0	0	0	0	Permanent
23	80849	32	M	26	Du20, Si18,Li4	8.30 am	1.4pm	58mm	50mm	45mm	24mm	20mm	20mm	11mm		5.1
24	81824	24	F	46	Du20, St6,Li4	9.40 am	No Analgesic	30mm	21mm	20mm	10mm	6mm	0	0	0	permanent
25	87656	17	F	17	Du20, Si18,Li4	11am	3pm	66mm	45mm	40mm	40mm	30mm	32mm			4
26	89876	16	M	47	Du20, St6,Li4	11.40am	6pm	53mm	47mm	43mm	32mm	30mm	25mm	22mm	22mm	6.4
27	89231	12	M	27	Du20, Si18,Li4	11.30am	No Analgesic	16mm	10mm	10mm	8mm	0			0	permanent
28	89912	32	f	17	Du20, Si18,Li4	10am	6pm	46mm	40mm	20mm	10mm	0				3.10
29	89234	41	m	46	Du20, St6,Li4	12am	6.15pm	48mm	38mm	22mm	11mm	11mm	0	0		3.15
30	89145	24	m	37	Du20, St6,Li4	12.10am	6.10am	51mm	10mm	10mm	0	0	0	0		permanent
31	91232	32	m	35	Du20,Li4,st6	10.10am	12.pm	86mm	80mm	80mm	76mm					1.50

TABLE.6.**TREATMENT DETAILS OF PATIENTS IN GROUP C2 (POST ORHTODONTIC PAIN)**

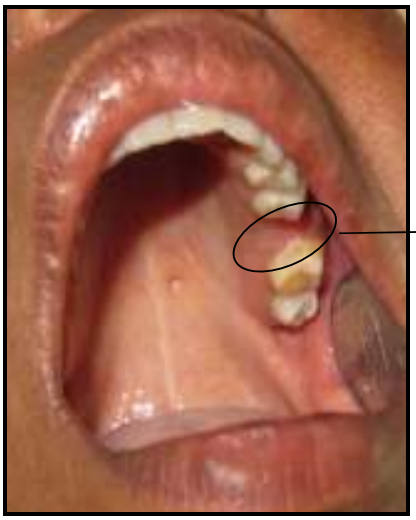
S. no	O.P.no	Age	Gender	Tooth number	Acupuncture treatment	Time of acupuncture	Time of analgesic intake	VAS scores								Duration of pain free period (in hours)
								Before	After	1	2	3	4	5	6	
1	89234	14	M	41	Du20,cv24,li4	10 am	No analgesic	24mm	20mm	16mm	10mm	5mm	0	0	0	Permanent
2	89432	12	F	33	Du20,v24, li4	10.10am	4pm	28mm	18mm	16mm	10mm	3mm	0	10 mm		4.5
3	89456	15	F	42	Du20,cv24 li4	11.50 am	2 pm	32mm	18mm	19mm	13mm					2.1
4	89765	19	F	21	Du20,li19 li4	12 am	7pm	38mm	30mm	20mm	18mm	0	0	0	0	7
6	89432	12	M	24	Du20,li20 li4	9am	4 pm	38mm	14mm	14mm	19mm	20mm				7
7	89121	15	F	16	Du20,si18 li4	10.45 am	1.30pm	10mm	4mm	14mm	19mm					2.15
8	90213	14	M	26	Du20,si18 li4	11.20 am	12.20 pm	60mm	54mm	54mm						1
9	90145	20	M	25	Du20,si18 li4	9.45 am	10pm	42mm	30mm	10mm	0	0	0	0	0	12.15
10	90231	14	M	46	Du20,st6 li4	11.15 am	4.15 pm	50mm	38mm	30mm	20mm	20mm	10mm	32 mm		5
11	91676	20	M	46	Du20,st6 li4	11.15 am	No Analgesic	32mm	23mm	20mm	10mm					Permanent
12	91874	17	M	27	Du20,si18 li4	11.40am	No Analgesic	22mm	12mm	10mm	0	0				Permanent
13	91267	20	M	37	Du20,st6 li4	10.15 am	4pm	90mm	90mm							1
14	91989	12	M	48	Du20,st6 li4	10.00 am	1.30 pm	40mm	10mm	10mm	8mm	22mm				3.3
15	91546	11	M	44	Du20,st5 li4	11.15 am	1pm	59mm	34mm	20mm	0					1.4
16	98345	18	F	46	Du20,st6 li4	9.30 am	4 pm	54mm	30mm	20mm	16mm	10mm	10mm	20 mm	24mm	6.3
17	92134	18	F	26	Du20,si18 li4	10am	5pm	66mm	34mm	32mm	30mm	10mm	10mm	12 mm	11mm	7
18	92612	22	M	36	Du20,st6 li4	9.45 am	2 pm	42mm	20mm	20mm	10mm	10mm	20mm			4.15
20	92541	20	M	37	Du20,st6 li4	9.30 am	9.40 pm	55mm	28mm	12mm	8mm	0	0	0	0	12.1
21	92317	24	M	15	Du20,si18 li4	9.30 am	2nd day	48mm	29mm	10mm	0	0	0	0	0	23
22	92476	12	M	44	Du20,st5 li4	8.15 am	7:00 pm	54mm	20mm	10mm	2mm	12mm	4mm	20 mm	25mm	10.4
23	92342	15	F	36	Du20, st6 li4	9.38 am	10.00 pm	95mm	85mm	60mm	56mm	50mm	20mm	20 mm	12mm	12.3
24	92010	12	F	46	Du20, st6 li4	9.30 am	12pm	40mm	10mm	10mm	20mm					2.3
25	93768	16	M	46	Du20, st6 li4	8.30 am	No analgesic	68mm	32mm	10mm	0					Permanent
26	93434	12	M	46	Du20, st6 li4	9.45 am	No analgesic	48mm	10mm	10mm	0					Permanent
27	93767	13	F	16	Du20,si18 li4	10.40am	10pm	69mm	40mm	20mm	10mm	0	0	0	0	11.2
28	94543	19	M	26	Du20, si18 li4	10.30am	No analgesic	54mm	20mm	10mm	0					Permanent
29	94676	14	M	16	Du20, si18 li4	10.15 am	5pm	46mm	24mm	10mm	12mm	9mm	17mm	15 mm	12mm	6.3
30	95676	12	F	26	Du20, si18 li4	11.30am	7pm	34mm	24mm	10mm	0	0	0	0	0	7.3
31	96743	12	F	16	Du20, si18 li4	9am	7pm	25mm	20mm	20mm	10mm	4mm	4mm	0	0	10

ACUPUNCTURE TREATMENT PROCEDURE

PHOTOGRAPH.3
PREOPERATIVE



PHOTOGRAPH.4
EXTRACTED SITE -26



PHOTOGRAPH.5

ACUPUNCTURE NEEDLE INSERTION AT DU 20

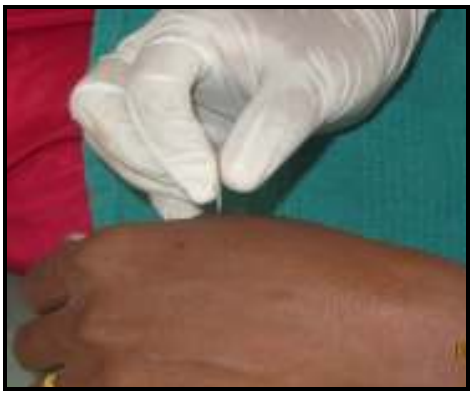
PHOTOGRAPH.6

ACUPUNCTURE NEEDLE AT DU 20

PHOTOGRAPH.7
ACUPUNCTURE NEEDLE INSERTION AT (R) LI 4

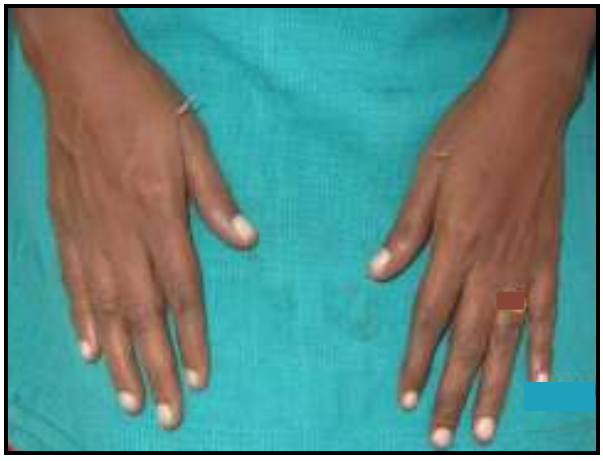
PHOTOGRAPH.8
ACUPUNCTURE NEEDLE AT (R) LI 4

PHOTOGRAPH.9
ACUPUNCTURE NEEDLE INSERTION AT (L) Li4

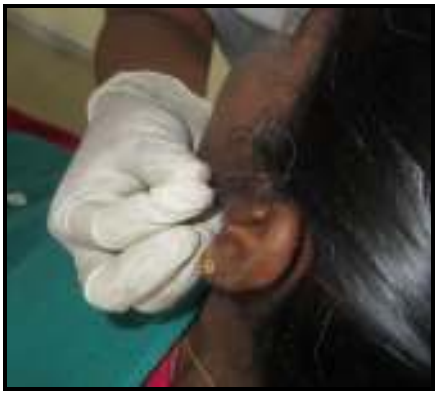


PHOTOGRAPH.10
ACUPUNCTURE NEEDLE AT (L) Li 4

PHOTOGRAPH.11
ACUPUNCTURE NEEDLES AT LI4



PHOTOGRAPH.12
ACUPUNCTURE NEEDLE INSERTION AT St 7



PHOTOGRAPH.13
ACUPUNCTURE NEEDLE AT St 7

PHOTOGRAPH.14
ACUPUNCTURE NEEDLES IN POSITION FOR 20 MINUTES

RESULTS

This study was conducted among 183 participants, with age ranging from 12-70 years, reporting for extraction, endodontic treatment, orthodontic treatment as well as those reporting with post operative pain following each dental treatment. The mean duration of pain free period were assessed and compared between the groups using SPSS version 17. Results of the analysis were interpreted and given as follows.

AGE DISTRIBUTION:

The mean age of the participants were 35.1 years, 43.4 years, 28.7 years, 30.4 years, 14.2 years,15.6 years in each group respectively.(Fig.8)

GENDER DISTRIBUTION:

Male: Female ratio was found to be 2.8:1, 1.2:1, 1.2:1, 1:1.1, 1:1.3, and 1.8:1 in each group respectively. (Fig.9)

PERCENTAGE OF PARTICIPANTS WITH PAIN RELIEF BASED ON VAS SCORES:

A. GOOD

About 70% of the participants in A1, 43% in A2, 30% in B1, 20% in B2, 56.7% in C1 and 46.3% in C2, showed good pain relief following acupuncture. (Fig.11)

PERCENTAGE OF PARTICIPANTS WITH PAIN RELIEF BASED ON VAS SCORES:

B.MODERATE

Around 20% of the participants in A1, 19.3% in A2, 19.3% in B1, 33.3% in B2, 23.3% in C1 and 13.3% in C2, showed moderate pain relief following acupuncture. (Fig.12)

PERCENTAGE OF PARTICIPANTS WITH PAIN RELIEF BASED ON VAS SCORES:

C.MINIMUM

Around 10% of the participants in A1, 10.9% in A2, 6.6% in B1, 26.6% in B2, 3.2% in C1 and 16.5% in C2, showed minimal pain relief following acupuncture. (Fig.13)

MEAN DURATION OF PAIN FREE PERIOD IN VAR VARIOUS GROUPS:

The mean duration of pain free period is 5.9 hr in group A1, 4.8 hr in group A2, 8.9 hr in B1, 4.9 hr in B2, 3.2 hr in C1, 5.9 hr in C2.(Fig.14,Tab.7)

COMPARISON OF PAIN FREE PERIOD IN VARIOUS GROUPS:

Pain free period in various groups were compared using one way ANOVA with post hoc test done using tukey test. There exists statistically significant difference in pain free period between the groups with the mean pain free period in group A1 is 5.9 hr, 4.8 hr in group A2, 8.9 hr in group B1, 4.9 hr in group B2, 3.2 hr in group C1, 5.6 hr in group C2 ($p<0.05$).(Tab.8,Tab.9)

INTENSITY OF PAIN IN PARTICIPANTS REPORTING WITH POST OPERATIVE PAIN BEFORE AND AFTER ACUPUNCTURE TREATMENT

The intensity of pain decreased by 20mm of VAS score in post extraction pain group whereas in post endodontic and post orthodontic group, it decreased by 19mm, 13mm immediately after acupuncture treatment. Following 1 hr, the pain intensity decreased by 28mm in post extraction pain group whereas in post endodontic and post orthodontic group, it decreased by 26mm, 21mm. Following 2 hr, the pain intensity decreased by 35mm in post extraction pain group whereas in post endodontic and post orthodontic group , it decreased by 32mm,26mm . Following 3 hr, the pain intensity decreased by 33mm in post extraction pain group whereas in post endodontic and post orthodontic group , it decreased by 32mm, 24mm. Following 4 hr, the pain intensity decreased by 43mm in post extraction pain group whereas in post endodontic and post orthodontic group , it decreased by 35mm, 36mm. Following 5 hr, the pain intensity decreased by 42mm in post extraction pain group whereas in post endodontic and post orthodontic group , it decreased by 35mm, 40mm. Following 6 hr, the pain intensity decreased by 44mm in post extraction pain group whereas in post endodontic and post orthodontic group, it decreased by 38mm and 39mm respectively.(Fig.Tab.10,11,12) None of the participants reported any adverse events

FIG.8.AGE DISTRIBUTION AMONG VARIOUS GROUPS

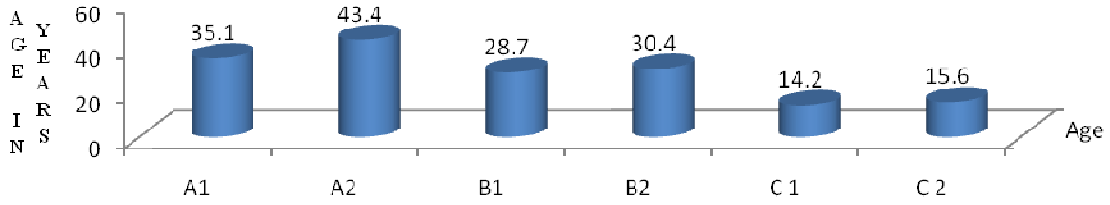


FIG.9. GENDER DISTRIBUTION AMONG VARIOUS GROUPS

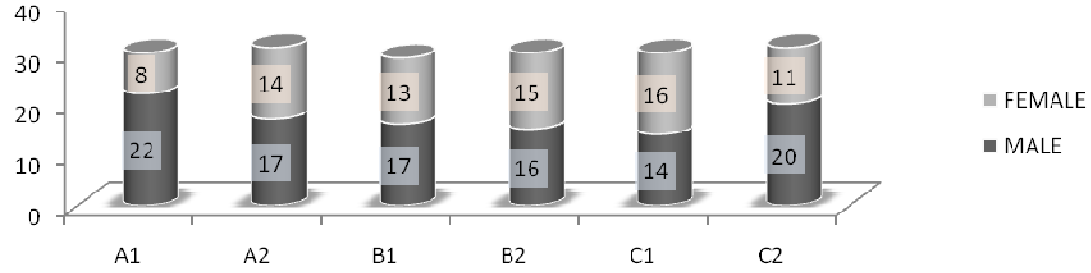


FIG.10. PERCENTAGE OF PARTICIPANTS WITH NO ANALGESIC INTAKE AMONG VARIOUS GROUPS

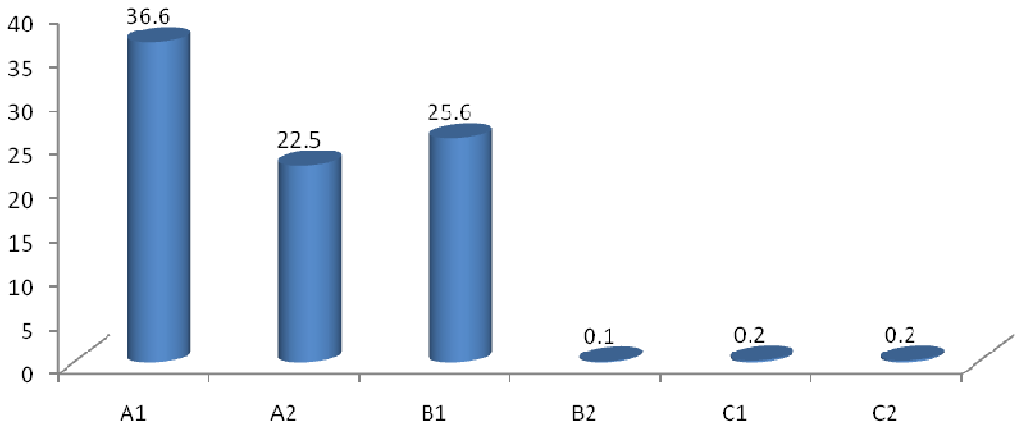


FIG.11. PERCENTAGE OF PARTICIPANTS WITH GOOD PAIN RELIEF

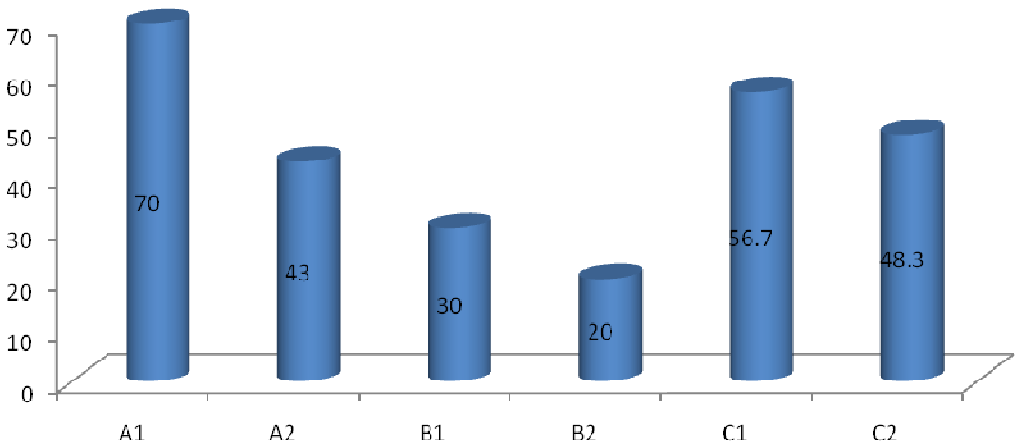


FIG.12. PERCENTAGE OF PARTICIPANTS WITH MODERATE PAIN RELIEF

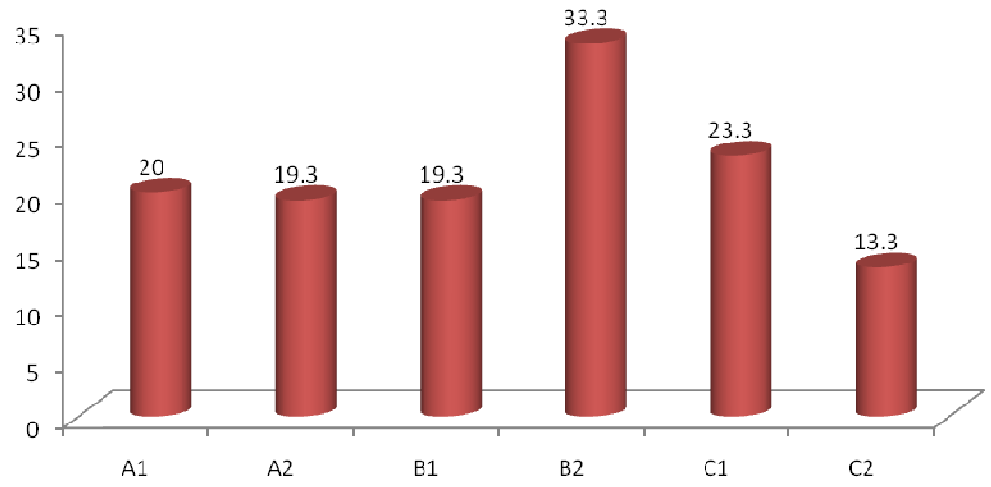
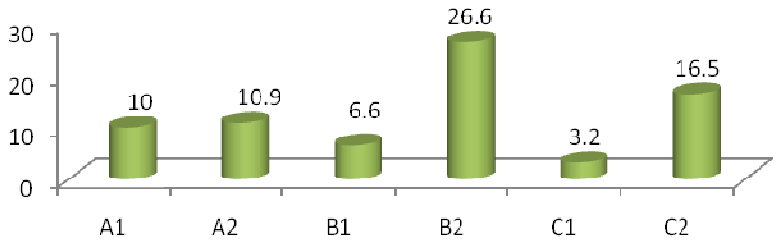


FIG.13. PERCENTAGE OF PARTICIPANTS WITH MINIMAL PAIN RELIEF



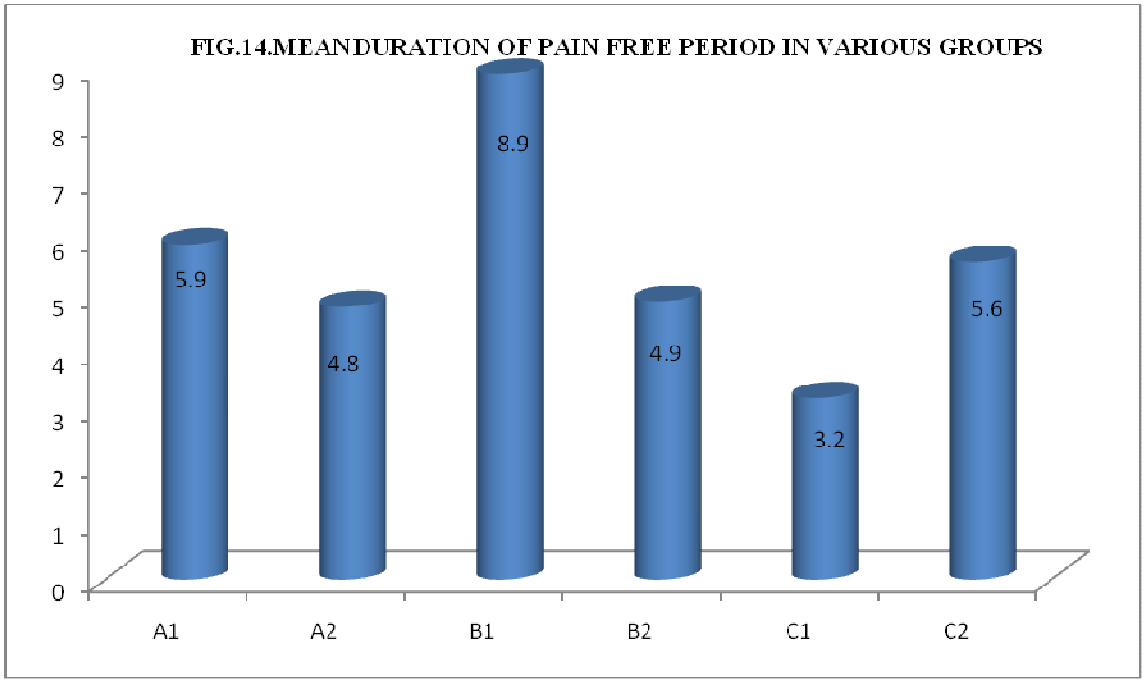


TABLE.7 MEAN DURATION OF PAIN FREE PERIOD IN VARIOUS GROUPS

GROUPS	Duration of pain free period (Mean ± STD) (In Hours)
A1	5.9 ±7.3
A2	4.8 ±4.7
A3	8.9 ±8.2
A4	4.9 ±7
A5	3.2±2.03
A6	5.6±5.3

TABLE.8 COMPARISON OF PAIN FREE PERIOD IN VARIOUS GROUPS

ONE WAY ANOVA					
	Sum of Squares	df	Mean Square	F	P-value
Between Groups	530.809	5	106.162	2.827	0.02*
Within Groups	6496.907	178	37.554		0.01*
Total	7027.717	183			

* - Clinically significant

TABLE.9.POST HOC TEST USING TUKEY TEST

Post Hoc test	(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% C.I (Confidence Interval)	
						Lower Bound	Upper Bound
Tukey	1	2	1.09	1.56	0.98	-3.42	5.62
		3	-3.02	1.58	0.04	-7.58	1.53
		4	0.97	1.59	0.99	-3.62	5.57
		5	2.64	1.58	0.05	-1.91	7.20
		6	0.29	1.59	1.00	-4.30	4.89
	2	1	-1.09	1.56	0.98	-5.62	3.42
		3	-4.12	1.56	0.09	-8.64	.40
		4	-0.12	1.58	1.00	-4.69	4.43
		5	1.54	1.56	0.92	-2.98	6.06
		6	-0.80	1.58	0.99	-5.36	3.76
	3	1	3.02	1.58	0.04	-1.53	7.58
		2	4.12	1.56	0.09	-.40	8.64
		4	3.99	1.59	0.12	-.60	8.59
		5	5.66	1.58	0.00	1.10	10.22
		6	3.31	1.59	0.30	-1.28	7.91

	4	1	-0.97	1.59	0.99	-5.57	3.62
		3	-3.99	1.59	0.12	-8.59	.60
		5	1.66	1.59	0.90	-2.92	6.26
		6	-0.67	1.60	0.99	-5.31	3.96
	5	1	-2.64	1.58	0.05	-7.20	1.91
		2	-1.54	1.56	0.92	-6.06	2.98
		3	-5.66	1.58	0.00	10.22	-1.10
		4	-1.66	1.59	0.90	-6.26	2.92
		6	-2.34	1.59	0.68	-6.94	2.25
	6	1	-0.29	1.59	1.00	-4.89	4.30
		2	0.80	1.58	0.99	-3.76	5.36
		3	-3.31	1.59	0.30	-7.91	1.28
		4	0.67	1.60	0.99	-3.96	5.31
		5	2.34	1.59	0.68	-2.25	6.94

TABLE.10 MEAN DIFFERENCE IN VAS SCORES BEFORE AND AFTER THE ACUPUNCTURE TREATMENT IN GROUP A2

VAS Scores	Paired Differences					Sig. (2-tailed)
	Mean	S.D	Std. Error Mean	95% Confidence Interval of the Difference		
				Lower	Upper	
Before –After	20.24	10.65	1.97	16.18	24.29	0.000*
Before - 1hr	27.86	13.84	2.57	22.59	33.12	0.000*
Before - 2hr	35.36	20.76	4.15	26.79	43.93	0.000*
Before - 3hr	33.13	21.56	5.56	21.19	45.07	0.000*
Before – 4hr	42.66	15.79	5.26	30.52	54.80	0.000*
Before - 5hr	41.85	19.52	7.37	23.80	59.91	0.001*
Before - 6hr	44.33	19.30	7.88	24.07	64.59	0.002*

***-clinically significant**

TABLE.11 MEAN DIFFERENCE IN VAS SCORES BEFORE AND AFTER THE ACUPUNCTURE TREATMENT IN GROUP B2

VAS Scores	Mean	S.D	Std. Error Mean	95% Confidence Interval of the Difference		Sig. (2-tailed)
				Lower	Upper	
Before- After	18.58	10	1.96	14.56	22.61	0.000*
Before - 1hr	25.55	14.57	2.70	20.01	31.08	0.000*
Before - 2hr	32.42	16.27	3.07	26.12	38.73	0.000*
Before - 3hr	31.77	13.36	2.84	25.84	37.69	0.000*
Before - 4hr	34.58	13.72	3.32	27.53	41.64	0.000*
Before - 5hr	35.06	14.99	3.74	27.07	43.05	0.000*
Before - 6hr	37.71	14.32	3.82	29.44	45.98	0.000*

***-clinically significant**

TABLE.12 MEAN DIFFERENCE IN VAS SCORES BEFORE AND AFTER THE ACUPUNCTURE TREATMENT IN GROUP C2

VAS Scores	Paired Differences					Sig. (2-tailed)
	Mean	S.D	Std. Error Mean	95% Confidence Interval of the Difference		
				Lower	Upper	
Before –After	13.16	9.97	1.82	9.44	16.89	0.000*
Before - 1hr	21.00	10.92	2.02	16.84	25.15	0.000*
Before - 2hr	26.00	10.58	2.03	21.81	30.18	0.000*
Before - 3hr	24.70	14.22	2.90	18.70	30.71	0.000*
Before - 4hr	35.58	8.140	2.35	30.41	40.75	0.000*
Before - 5hr	39.22	8.318	2.77	32.82	45.61	0.000*
Before - 6hr	38.80	9.834	4.39	26.59	51.01	0.001*

***-clinically significant**

FIG.15. MEAN DIFFERENCE IN VAS SCORES BEFORE AND AFTER THE ACUPUNCTURE TREATMENT IN GROUP A2

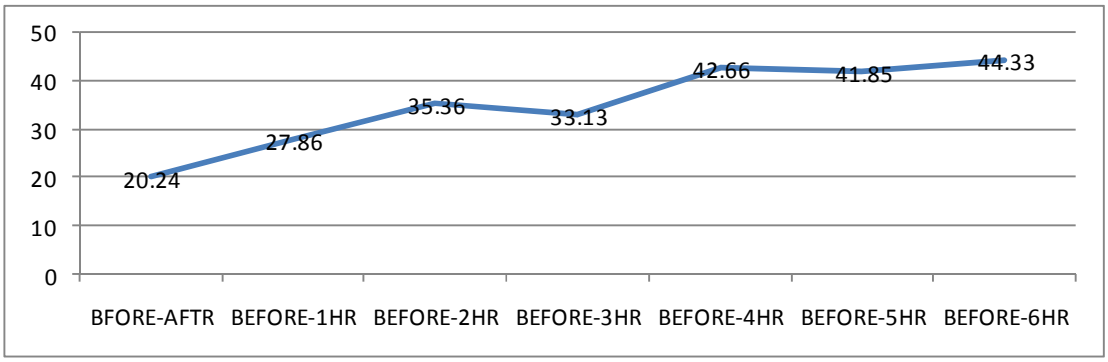


FIG.16.MEAN DIFFERENCE IN VAS SCORES BEFORE AND AFTER THE ACUPUNCTURE TREATMENT IN GROUP B2

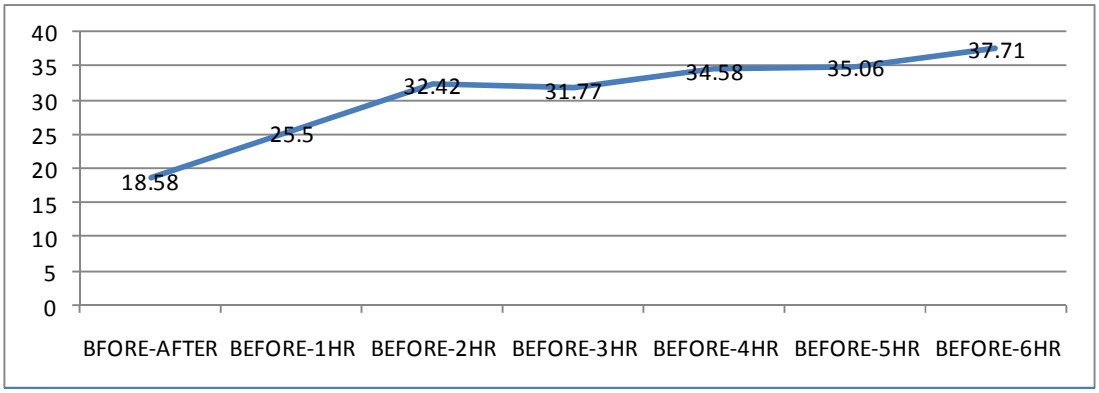
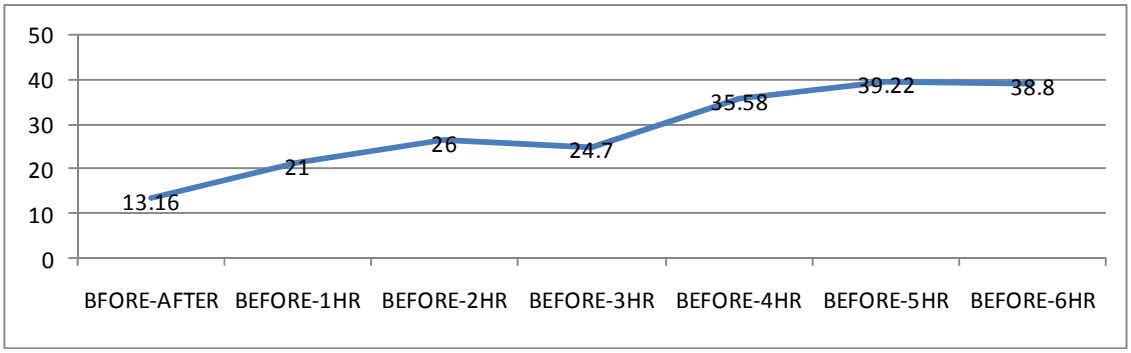


FIG.**17. MEAN DIFFERENCE IN VAS SCORES BEFORE AND AFTER THE ACUPUNCTURE TREATMENT IN GROUP C2**



DISCUSSION

The primary objective of this study was to evaluate the effectiveness of acupuncture on post operative pain control following three dental procedures. And the results of the study have proved acupuncture has significant effect on pain control following various dental treatments.

In the current study, intake of participants were of wider age range between 12-70 years, whereas studies by **Sung Y.F et al in 1977**, **Marconi Gonzaga et al 2007** reported their mean age of the participants to be 20-45 years. Hence, the current study proves that acupuncture can be safely used in wider age group of the population.

In the current study, the mean duration of pain free period was between 4.8-5.9 hours in all groups except endodontic treatment group showing longer duration of pain free period for 8.9 hours. Studies by **Sung Y.F. et al 1977** and **Marconi Gonzaga et al 2007** in post operative surgery of impacted Molars have shown the mean pain free time between 2.30-3.30 hrs. Although the current study, have shown longer pain free period, this could be attributed to different procedures undergone and racial differences.

In the current study, around 36.6% of the participants immediately following extraction, 25.6% following endodontic treatment 0.2% following

orthodontic treatment did not take analgesics whereas 22.5% of those with post extraction pain, 0.1% in post endodontic pain and 0.2% with post orthodontic pain did not take analgesics following acupuncture.

This study also showed that acupuncture had produced greater pain relief in 70% of the participants following extraction, 43% of participants following endodontic treatment, 30% following orthodontic treatment, 20% with post extraction pain, 56.7% with post endodontic pain and 46.3% with post orthodontic pain.

Moderate pain relief were observed in 20% of the participants following extraction,19.3% following endodontic treatment, 19.3% following orthodontic treatment, 33.3% with post extraction pain, 23.3% with post endodontic pain and 13.3% with post orthodontic pain.

Minimal pain relief were observed in 10% of the participants following extraction, 10.9% following endodontic treatment,6.6% following orthodontic treatment, 26.6% with post extraction pain, 3.2%with post endodontic pain and 16.5% with post orthodontic pain.

Hence the current study has established an evidence that acupuncture can produce adequate pain relief and substantial reduction in analgesic intake following different dental treatment procedures which have not been proved in earlier studies.

LIMITATIONS

1. Sample size is small. Further studies are to be done with larger sample size.

2. This study does not include control group to compare with. Further studies are to be done with the control group or compared with any other mode of therapy to validate the study.

3. Pain evaluation was subjective.

SUMMARY AND CONCLUSION

A variety of treatment modalities, in vogue for pain control, are practiced by both registered and non formal practitioners. Many such procedures are associated with some form of side effects. Acupuncture, one of the proven modality for pain control can be practiced if properly trained, without causing any adverse events to the patients.

According to the order issued by Ministry of Health and Family Welfare (Ref. no.R14015/25/96-U&H (R)), acupuncture is allowed as a mode of therapy to be given by registered medical practitioners or appropriately trained personnel, even in an allopathic institution and it has been suggested by ICMR that a specialist from the required system of medicine should be a part while designing, conducting and evaluating the study involving alternative medicine. Hence, this study was performed by a trained acupuncturist under the guidance of specialist from Arignar Anna Government Indian Medicine Hospital, Chennai.

This study was performed with the view to determine acupuncture effectiveness in post operative pain control and it was found that around 36.6% of the participants immediately after extraction, 22.5% with post extraction pain, 25.6% immediately after endodontic treatment, 0.1% with post endodontic pain, 0.2% immediately after orthodontic treatment and 0.2% with

post orthodontic pain did not take analgesics following acupuncture. The mean duration of pain free period is longer in participants immediately after endodontic treatment for 8.9 hr, followed by 5.9 hr in participants immediately after extraction and in post orthodontic group, 4.9 hr in post endodontic group, 4.8 hr in post extraction group and 3.2 hr in participants immediately after orthodontic treatment.

The present study gives an insight into the effect of acupuncture on post operative pain control following various dental treatment procedures. And it has proved that acupuncture has significant effect on pain management and also reduced the analgesic intake. Thus, it can be widely used as an adjunctive therapy for pain control after dental treatments, especially in patients who are allergic or contraindicated to drugs, without any adverse effects.

ANNEXURE 1A

INFORMATION SHEET

1. **Nature of study**:
   This study is done to evaluate acupuncture as a modality in pain relief in three dental procedures amongst the patients reporting to the Tamil Nadu Government Dental College and Hospital, Chennai.

2. **Purpose of Study:**
   As analgesics are associated with various side effects and for certain patients, they are contraindicated due to some medical reason. Hence, the purpose of this study is to evaluate the effectiveness of acupuncture on pain control and duration of pain free period after three dental procedures namely extraction, endodontic treatment and orthodontic treatment.

3. **Duration of Participation**:
   The expected duration of participation is 40 minutes with 20 minutes for case record and 20 minutes for acupuncture treatment on the first visit and the next day follow up for evaluation of pain free period.

4. **Procedure:**
   After the mentioned dental treatment, sterile disposable acupuncture needles are inserted at the specified points on the skin (local and distal) to be retained in place for a total period of 20 minutes with manual stimulation (by rotating the needle) at 0,10, and 20 minutes. And to report back pain free period on the next day.

5. **Alternative treatment:**
   Prescribed analgesic can be taken if pain develops.

6. **Associated risks:**
   This treatment will be rendered with necessary precautions by a trained acupuncturist cum registered dental surgeon; the risks associated with the procedure are minimal.

7. **Risk Management**:
   In case of any emergency, management of the same will be carried out at the

nearby Rajiv Gandhi Government General Hospital, situated just opposite to the Dental College.

8. Benefits:

To the Participants:

Acupuncture is simple, safe, and effective without any adverse effects that are commonly encountered in drug therapy. Hence this can be safely advised for pain control.

To the community:

If favorable results are obtained, this mode of therapy can be implemented in treatment camps where analgesics are indicated.

To the Medical Profession:

Simple and easy technique to perform. Once adequately trained, can be performed by registered practitioners.

9. Confidentiality:

Each participant will be assigned a serial number and their records will be maintained throughout the study as highly confidential. In the event of any publication or presentation resulting from the research, no personal identifiable information will be shared.

10. Voluntary participation:

Taking part in this study is voluntary. No Compensation will be given for travel expenses for follow up trip. You are free to decide whether to participate or to withdraw at any time;Your decision will not result in any loss of benefits to which you are otherwise entitled.

11. Contact details of Chairman of IEC:

Dr. K.S.G.A Nasser,
Principal,
Tamil Nadu Government Dental College and Hospital,
Chennai-3.

Signature of the Investigator: Signature/Thumb impression of the participant

ANNEXURE 1B

ஆராய்ச்சி பற்றிய தகவல் படிவம்

1. ஆராய்ச்சி தலைப்பு

தமிழ்நாடு அரசு பல் மருத்துவக் கல்லூரி மற்றும் மருத்துவமணையில் அக்குபங்சர் மூலம் மூன்று வித பற் சிகிச்சைக்கு பின் ஏற்படும் வலி நிவாரண திறண் பற்றிய ஆராய்ச்சி நடத்தப்படுகிறது. இந்த ஆராய்ச்சியில் பற்கள் அகற்ற வரும் நோயாளிகள், பற்களில் வேர் சிகிச்சை மேற்கொண்ட நோயாளிகள், மற்றும் பற்கள் சீரமைப்பு சிகிச்சை மேற்கொண்ட நோயாளிகள் மட்டுமே பங்கேற்கிரார்கள்.

2. ஆராய்ச்சியின் நோக்கம்

வலி நிவாரண மருந்துகள் பக்கவிளைவுகள் ஏற்படுத்த கூடியது. சில நோயாளிகளுக்கு வெவ்வேறு காரணங்களால் இவை பரிந்துறைக்கபடுவதில்லை. எனவே இந்த ஆராய்ச்சியின் நோக்கம் அக்குபங்சர் மூலம் வலி நிவாரண திறண் கண்டறிதலாகும்

3. பங்களிப்பு நேரம்

முதல் நாளன்று நோயாளியின் சிகிச்சை நேரம் 40 நிமிடத்திற்கு மேற்படாது. அந்த 40 நிமிடத்தில், 20 நிமிடம் நோயாளியின் தகவல் சேகரிப்பிற்கும் அடுத்த 20 நிமிடம் அக்குபங்சர் சிகிச்சைக்காகவும் ஒதுக்கப்படுகிறது. மறுநாள் நோயாளிகள், திரும்ப அழைக்கப்பட்டு வலி நிவாரண காலஅளவு மதிப்பாய்வு செய்யப்படும்.

4. சிகிச்சை முறை

மேற்கூறிய பல் சிகிச்சைக்கு பின்னர், அக்குபங்சர் சிகிச்சை முறையானது, பிரத்யேகமாக வடிவமைக்கப்பட்ட, ஒருமுறை மட்டுமே பயண்படுத்தபடும், கிருமிதொற்று நீக்கிய ஊசியினால், தோலின் மேற்புற திசு பரப்பில் உள்ள அக்குபங்சர் புள்ளிகளில் (வாய் பகுதி அருகிலுள்ள புள்ளி மற்றும் தூரப்புள்ளி) மட்டுமே ஊடுறுவ செய்து 20 நிமிடம் வரை வைக்கபடுகிறது. 10 நிமிடத்திற்கு ஒருமுறை ஊசி திறண் தூண்டப்படும். மறுநாள் நோயாளிகள், திரும்ப அழைக்கப்பட்டு வலி நிவாரண காலஅளவு மதிப்பாய்வு செய்யப்படும்.

5. பக்கவிளைவுகள்

இந்த சிகிச்சை நன்கு பயிற்சி பெற்ற மருத்துவர்களால் அளிக்கபடுகிறது. ஆதலால் எந்த வித பாதிப்பும் ஏற்பட வாய்ப்பு இல்லை .

6. மாற்று சிகிச்சை

அக்குபங்சர் சிகிச்சைக்கு பின்னும் வலி ஏற்பட்டால் பரிந்துரைக்கப்பட்ட வலி நிவாரண மாத்திரை எடுத்து கொள்ளவும்.

7. அவசர சிகிச்சை

ஒரு வேளை அவசர சிகிச்சை தேவைப்படும் பட்சத்தில் கல்லூரிக்கு எதிரே உள்ள ராஜீவ் காந்தி அரசு பொது மருத்துவமணையல் சிகிச்சையளிக்கப்படும்.

8. ஆராய்ச்சியின் பயன்கள்

பங்களிப்போருக்கு

இந்த அக்குபங்சர் சிகிச்சை மூலம் மற்றைய உள்மருந்து போல் எந்த வித பக்கவிளைவுகள் இல்லை

<u>சமூகத்திற்கு</u>

இது நன்றாக பயன்பட்டால், இம்முயற்சி பல் மருத்துவ முகாமிற்கு சிபாரிசு செய்யப்படும்.

<u>மருத்துவதுறை சார்ந்தோருக்கு</u>

அக்குபங்சர் சிகிச்சை எளிய மற்றும் எளிமையான தொழில்நுடபம்கொண்டது. தகுந்த பயிற்சிபெற்று இதனை மருத்துவாகள் கையாளலாம்

9. தகவல் இரகசியம்

கலந்துக்கொள்ளும் நோயாளிகளுக்கு வரிசை எண் தரப்படும் மற்றும் அவர்களின் குறிப்புகள் ஆராய்ச்சி முடியும் வரை பிறர் அறியாவண்ணம் இரகசியமாக பாதுகாக்கப்படும். அதை வெளியிடும் நேரத்தில் எந்த நோயாளியின் தனி அடையாளங்களும் வெளியிட படமாட்டாது .

10. தனிச்சையில்லாத பங்கேற்றல்

இந்த ஆராய்ச்சியில் பங்கு பெறுவது உங்களின் தனிப்பட்ட முடிவாகும். இது நோயாளிகள் தானாகவே மருத்துவ சிகிச்சை பெற்றுக்கொள்ளும் பட்சத்தில் பயணப்பிடி தரப்படாது. இந்த ஆராய்ச்சியிலிருந்து நீங்கள் எப்பொழுது வேண்டுமானாலும் விலகிக் கொள்ளலாம். இது உங்களுக்கோ அல்லது ஆராய்ச்சியாளருக்கோ எந்தவித பாதிப்பும் ஏற்படுத்தாது என்பதை தெரியப்படுத்துகிறோம்.

11. முதல்வர் , ஆராய்சசி அனுமதி கழகம் :

டாக்டர் **K.S.G.A.**நாசர்

முதல்வர்

தமிழ்நாடு அரசு பல் மருத்துவக் கல்லூரி மற்றும் மருத்துவமணை , சென்னை - 3

ஆராய்ச்சியாளர் கையொப்பம் நோயாளியின் கையொப்பம் / கைரேகை

தேதி

S.NO:

ANNEXURE 2

TAMILNADU GOVERNMENT DENTAL COLLEGE & HOSPITAL ,CH-3

DEPT. OF PUBLIC HEALTH DENTISTRY

INFORMED CONSENT FORM- ENGLISH

STUDY TITLE:

Name : Mr/Ms OP. NO :

Age : years

Sex: Male/ Female

Address:_____

_____

_____

_____

Phone:

I, Mr / Ms. _____, exercising my free power of choice, hereby give my consent to be included as a participant in the study.

I agree to the following:

- ✓ I have been informed to my satisfaction about the purpose of the study and the study procedures.
- ✓ I agree to co-operate fully in history and examination procedures and necessary treatment provided.
- ✓ I have informed to my doctor about all the medications that I am currently taking and the systemic illness that I have.
- ✓ I hereby give permission to use my medical records for research purpose.
- ✓ I am told that the investigating doctor and the institution will keep my identity confidential.
- ✓ I understand that I have rights to withdraw from the study and also that the investigator has the right to exclude me from the research at any point of time.

Name of the Participant Signature /Thumb ImpressionDate:

Chief Investigator:

வரிசை எண்:

ANNEXURE -2B

தமிழ்நாடு அரசு பல் மருத்துவக் கல்லூரி மற்றும் மருத்துவமனை-சென்னை-3

சமுதாய பல் பாதுகாப்பு பிரிவு

ஆராய்ச்சி ஒப்புதல் படிவம்

ஆராய்ச்சி தலைப்பு: அக்குபங்சர் மூலம் மூன்று வித பற் சிகிச்சைக்கு பின் ஏற்படும் வலி நிவாரண திறண் கண்டறிதல்.

பெயர் : திரு/திருமதி புற நோயாளியின் எண்:

முகவரி:_____ வயது :_____ ஆண்டு

_____ பாலினம்: ஆண்/பெண்

_____

தொலைபேசி எண்:

நான்_____ என்னுடைய சுயநினைவுடனும் மற்றும் முழுசுதந்திரத்துடனும் என்னை இம்மருத்துவ ஆராய்ச்சியில் சேர்த்துக் கொள்ள ஒப்புதல் அளிக்கிறேன்:

இந்த ஆராய்ச்சியின் நோக்கம், மற்றும் பரிசோதனை முறைகள் குறித்த விளக்கங்கள் அனைத்தும் எனக்கு திருப்திதரும் வகையில் அளிக்கப்பட்டன.

- ✓ இந்த ஆராய்ச்சிக்கு தேவையான பரிசோதனைக்கு ஒத்துழைக்கவும், கொடுக்கப்படும் வினாத்தாளில் பதில் அளிக்கவும் சம்மதிக்கிறேன்.
- ✓ மருத்துவரின் ஆராய்ச்சிக்கு தேவைப்படும் பொழுது மீண்டும் ஆய்விற்கு வர சம்மதிக்கிறேன்
- ✓ என் மருத்தவ குறிப்பேடுகளை இந்த ஆராய்ச்சியில் பயன்படுத்திக்கொள்ள சம்மதிக்கிறேன்
- ✓ எந்த ஒரு நிலையிலும் நான் இந்த ஆராய்ச்சியிலிருந்து விலகுவதற்கும் அல்லது மருத்துவ ஆராய்ச்சியாளருக்கு என்னை விலக்குவதற்கும் முழு உரிமை இருப்பதாகவும் அறிகிறேன்

நோயாளியின் பெயர் கையொப்பம் / கைரேகை தேதி

ஆராய்ச்சியாளர்

S.NO:
INVESTIGATOR:

ANNEXURE 3

EVALUATION OF ACUPUNCTURE AS A MODALITY IN PAIN RELIEF IN THREE DENTAL PROCEDURES – AN INTERVENTIONAL STUDY

DEPARTMENT OF PUBLIC HEALTH DENTISTRY

TAMILNADU GOVERNMENT DENTAL COLLEGE & HOSPITAL,CH-3

CASE RECORD FORM

OP.NO : DATE:

PATIENT'S NAME : Mr. /Ms.

AGE : Years

SEX : Male / Female

DATE OF BIRTH :

PLACE OF BIRTH :

RELIGION : Hindu / Muslim /Christian /Jainism /Buddhism /Others

EDUCATION & QUALIFICATION:

OCCUPATION:

INCOME: Rs

PER CAPITA INCOME: Rs (NO. OF MEMBERS IN FAMILY=)

ADDRESS:

PINCODE:

PHONE NUMBER

CHIEF COMPLAINT :

1. LOCATION OF PAIN:

2. ONSET OF PAIN:

A. ASSOCIATED WITH OTHER FACTORS:

B. PROGRESSION:

3. CHARACTERISTICS OF PAIN:

A. QUALITY OF PAIN:

B. BEHAVIOUR OF PAIN:

C. INTENSITY:

D.CONCOMITTENT SYMPTOMS:

E. FLOW OF THE PAIN:

4. AGGREVATING AND RELIEVING FACTORS:

5. PAST CONSULTATION AND /OR TREATMENT:

6. RELATIONSHIP TO OTHER COMPLAINTS:

PAST MEDICAL HISTORY :

PAST DENTAL HISTORY :

DRUG HISTORY:

FAMILY HISTORY :

FATHER :

MOTHER :

NUMBER AND AGE OF SIBLING : MALE :

FEMALE :

PERSONAL HISTORY :

I. HABITS

SMOKING : YES/ NO

TYPE :

CIGARETTE/BIDI/HOOKAH/CHILLUM/CHUTTA/DHUMTI/

FREQUENCY: / DAY

DURATION :

PAN CHEWING : YES/NO

TYPE : PAN PARAG/PANMASALA/GUTKHA/MAWA/

SNUFF/ZARDA/KHAINI/MISHRI/MAINPURI TOBACCO

FREQUENCY: / DAY

DURATION :

ALCOHOLISM : YES/ NO

TYPE :

FREQUENCY: / DAY

DURATION :

GENERAL EXAMINATION

SIGNS OF PALLOR : PRESENT/ ABSENT

ICTERUS : PRESENT/ ABSENT

CYANOSIS : PRESENT/ ABSENT

CLUBBING : PRESENT/ ABSENT

PEDAL EDEMA : PRESENT/ ABSENT

LYMPHADENOPATHY: PRESENT/ ABSENT

VITAL SIGNS

PULSE RATE : /min

RESPIRATORY RATE : /min

TEMPERATURE : ^{0} C

BLOOD PRESSURE : mm of Hg

CRANIAL NERVE EVALUATION:

EYE EVALUATION:

EAR EVALUATION:

CERVICAL EVALUATION:

BALANCE AND COORDINATION:

NUTRITIONAL STATUS (QUTELET'S BODY MASS INDEX)

HEIGHT: cm

WEIGHT: Kg

BODY MASS INDEX: Weight in Kg / Height in m^2

LOCAL EXAMINATION

EXTRA ORAL EXAMINATION:

FACIAL SYMMETRY:

MUSCLE EXAMINATION:

TMJ

MOUTH OPENING : mm

CLICKING SOUND : PRESENT/ ABSENT

PAIN : PRESENT/ ABSENT

TENDERNESS : PRESENT/ ABSENT

DEVIATION : PRESENT/ ABSENT

MOVEMENTS

ELEVATION/ DEPRESSION :

PROTRUSION/ RETRUSION:

RIGHT / LEFT LATERAL :

CERVICAL LYMPHADENOPATHY:

INTRAORAL EXAMINATION

SOFT TISSUE EXAMINATION :

LABIAL MUCOSA :

BUCCAL MUCOSA :

PALATAL MUCOSA :

VESTIBULAR MUCOSA :

FLOOR OF THE MOUTH :

TONGUE :

FRENAL ATTACHMENT :

PILLAR OF FAUCES :

TONSILS :

HARD TISSUE EXAMINATION:

MAXILLA :

MANDIBLE :

TYPE OF DENTITION : DECIDOUS/ PERMANENT/ / MIXED

TEETH PRESENT :

MISSING TEETH

REASON :

DECAYED :

FILLED :

ANY PROSTHESIS : REMOVABLE/ FIXED/ COMPLETE

SUPERNUMERARY TEETH:

MALOCCLUSION

FRACTURED TEETH : [ELLI'S CL I, II, III, IV, V, VI, VII, VIII, IX]

NON VITAL TEETH : [ ]

RETENTION FACTORS

DEBRIS :

PLAQUE :

CALCULUS :

STAINS :

PERIODONTAL STATUS

GINGIVA

COLOUR :

CONTOUR :

CONSISTENCY :

SURFACE TEXTURE :

POSITION :

BLEEDING ON PROBING :

EXUDATE :

PROBING DEPTH :

MOBILITY OF TEETH : GRADE I -

{MILLER'S INDEX} GRADE II -

GRADE III

ANNEXURE 4
DENTAL EXTRACTION GROUP

O.P No.

Patient's Name:

Age:

Sex:

Acupuncture points:

Subgroup 1
Duration of pain free period:

Time of intake of analgesic:
Subgroup 2
VAS score
Before treatment:

After treatment:

ENDODONTIC TREATMENT GROUP

O.P No.

Patient's Name:

Age:

Sex:

Acupuncture points:

Subgroup 1
Duration of pain free period:

Time of intake of analgesic:
Subgroup 2
VAS score
Before treatment:

After treatment:

FIXED ORTHODONTIC GROUP

O.P No.

Patient's Name:

Age:

Sex:

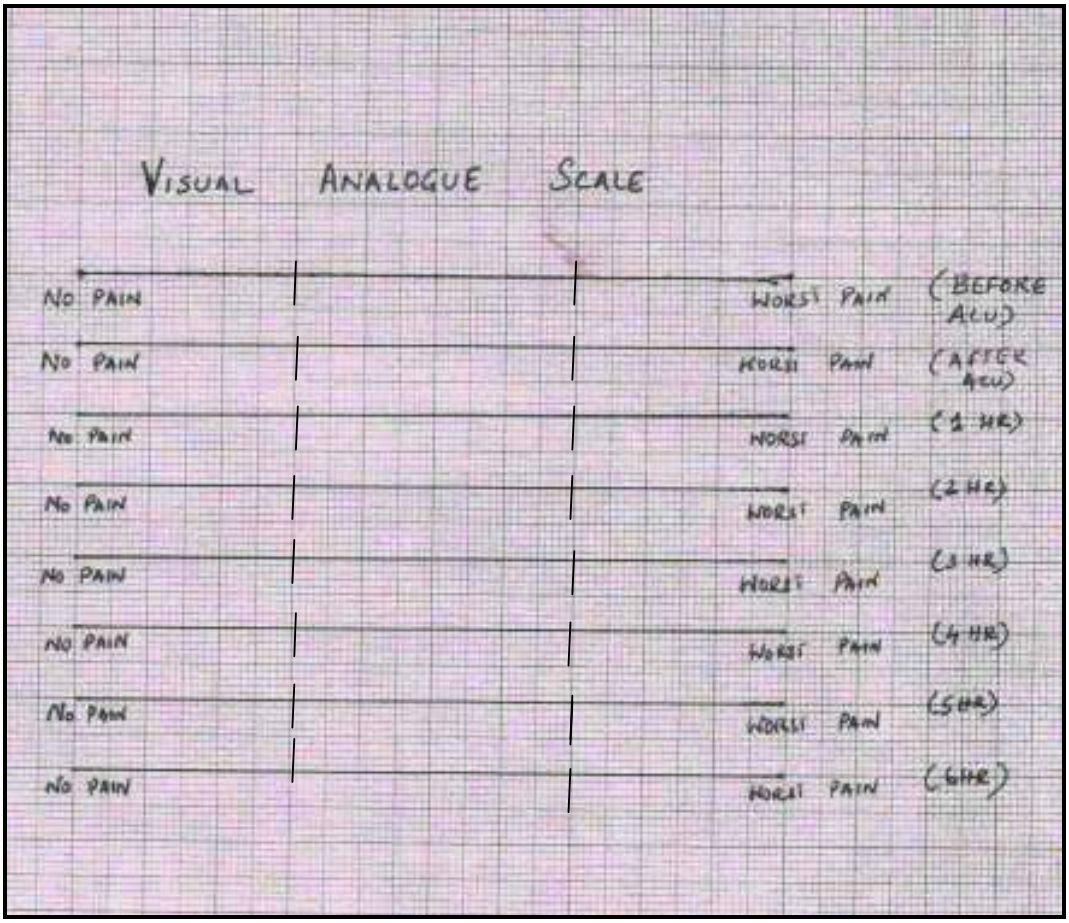
Acupuncture points:

Subgroup 1
Duration of pain free period:

Time of intake of analgesic:
Subgroup 2
VAS score
Before treatment:

After treatment:

ANNEXURE-5


VISUAL ANALOGUE SCALE
NO PAIN
WORST PAIN
(BEFORE ACU)
NO PAIN
WORST PAIN
(AFTER ACU)
NO PAIN
WORST PAIN
(½ HR)
NO PAIN
WORST PAIN
(2 HR)
NO PAIN
WORST PAIN
(3 HR)
NO PAIN
WORST PAIN
(4 HR)
NO PAIN
WORST PAIN
(5 HR)
NO PAIN
WORST PAIN
(6 HR)

ANNEXURE-6

Dr. R. Himeshwari, N.D., (OSM)

Professor & Medical Officer

Govt. Yoga & Naturopathy Medical College
AAGHIM Campus
Arumbakkam, Chennai - 600 106.

FROM

Dr.R.S.Himeshwari

Professor & Medical officer

Govt. Yoga & Naturopathy Medical college

Arumbakkam, Chennai – 600106

To

The Principal

The Tamil Nadu Govt. Dental College & Hospital

Chennai – 3

Respected sir/ mam

I am accepting to be the co-guide for the study, to be done by Dr. V.Brinda lakshmi on "EVALUATION OF ACUPUNCTURE AS A MODALITY FOR PAIN RELIEF IN 3 DENTAL PROCEDURES" – AN INTERVENTIONAL STUDY.

R. S. Himeswari

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