

Use of Acupuncture as a Novel Practice in the Management of Dental Diseases: A Review

Girish Katti¹,
Karuna²,
Parita K Chitroda³,
Syed Shahbaz⁴

¹Principal, Professor & Head, Department of Oral Medicine & Radiology, Al-Badar Rural Dental College & Hospital, Gulbarga, Karnataka, India, ²Post-graduate Student, Department of Oral Medicine & Radiology, Al-Badar Rural Dental College & Hospital, Gulbarga, Karnataka, India, ³Reader, Department of Oral Medicine & Radiology, Al-Badar Rural Dental College & Hospital, Gulbarga, Karnataka, India, ⁴Senior Lecturer, Department of Oral Medicine & Radiology, Al-Badar Rural Dental College & Hospital, Gulbarga, Karnataka, India

Corresponding Author: Dr. Karuna, Department of Oral Medicine & Radiology, Al-Badar Rural Dental College & Hospital, Opposite to Koranti Hanuman Temple, Naganhalli Road, Gulbarga - 585 103, Karnataka, India. Phone: +91-8722598748, E-mail: karunass13@gmail.com

Abstract

Dentistry has undergone a sea change over the years. Many modalities have been tried and tested for the relief of pain and inflammation with varying success rates. However, the role of acupuncture in dentistry is less explored horizon. Acupuncture is among the oldest healing practices in the world, is a part of traditional Chinese medicine. It is the best-known complementary and alternative therapy. Originated in china for more than 3000 years ago and is practiced throughout the world. Acupuncture practitioners stimulate specific points on the body by inserting thin needles through the skin called acupoints. These points serve as a tunnel to deeper circulating channels and stimulating these points activates the body's natural healing ability. This paper reviews the possible role and application in the field of dentistry.

Keywords: Acupuncture, Chinese medicine, Dental diseases, Ying and Yang theory

INTRODUCTION

Acupuncture is derived from Latin word (acus-needle, pungere-to prick) is one of the complementary and alternative medicine techniques used to treat a variety of diseases and disorders.¹ It is the Chinese practice of piercing specific areas of the body with fine needles to relieve pain, to induce surgical anesthesia and for therapeutic purposes.

Acupuncture defined by the medical practice as inserting fine dry needles into the skin to stimulate specific anatomic points in the body (called acupoints). The acupoints are thus stimulated to regulate, correct and balance the flow of energy (Qi) in the body to restore health.² Depending upon the problem being treated acupuncture techniques may include solid needles, electro-acupuncture, moxibustion, acupressure, lasers and transcutaneous nerve stimulation for disease prevention, treatment and maintenance of health.

HISTORY

Acupuncture is a technique, originated in China for more than 3000 years ago³⁻⁵ and involves the insertion of needles

into various parts of the body with the intention of curing disease.⁴ It is now practiced throughout the world, particularly in China, Korea, and Japan. In the United States, acupuncture started gaining popularity in the early 1970s.¹

Traditional Chinese medicine (TCM), which encompasses many different practices, is rooted in the ancient philosophy of Taoism and dates back more than 5000 years. The practice of TCM is a unique view of the world and the human body that is different from Western medicine concepts. This view is based on the ancient Chinese perception of humans as microcosms of the larger, surrounding universe-interconnected with nature and subject to its forces.

The human body is regarded as an organic entity in which the various organs, tissues, and other parts have distinct functions, but are all interdependent. In this view, health and disease related to balance of the functions.

The theoretical framework of TCM has a number of key components:

- Yin-yang theory: The concept of two opposing, yet complementary, forces that shape. The world and all life - Is central to TCM

- In the TCM view, a vital energy or life force called Qi circulates in the body through a system of pathways called meridians. Health is an ongoing process of maintaining balance and harmony in the circulation of Qi
- The TCM approach uses eight principles to analyze symptoms and categorize conditions: Cold/heat, interior/exterior, excess/deficiency and yin/yang (the chief principles).

TCM also uses the theory of five elements - Fire, earth, metal, water, and wood - To explain how the body works these elements correspond to particular organs and tissues in the body.⁶ Each of them has its specific role in helping to maintain a harmonized condition and good health of an individual.²

The traditional acupuncturist's skill lies in identifying the precise nature of the underlying disharmony and selecting the most effective treatment. The choice of acupuncture points will be specific to each patient's needs.

Traditional acupuncture can also be used as a preventive measure to strengthen the constitution and promote general well-being.⁷ Other TCM therapies include moxibustion, cupping, Chinese massage; mind-body therapies such as Qi Gong and Tai Chi; and dietary therapy.

TCM emphasizes individualized treatment. Practitioners traditionally used four methods to evaluate patient's condition: Observing especially the:

- Tongue
- Hearing/smelling
- Asking/interviewing
- Touching/palpating (especially the pulse).⁶

SCIENTIFIC BASIS OF ACUPUNCTURE

The theoretical background of acupuncture therapy based on the metaphysical concepts of Qi and Yin–Yang balance seems to conflict with the practice of Western medicine that is based on anatomical, physiological, and biochemical evidence. Since the introduction of acupuncture therapy into modern Western medicine, numerous studies have been carried out to investigate and explain the scientific basis behind it.⁸

The basic idea behind acupuncture, according to ancient theory, is that energy flows within the human body and can be stimulated to create balance and health. The energy flow (or vital force)-called Qi and pronounced “chee”-moves throughout the body along main channels known as meridians.³ Meridians are the invisible channels, which are composed of 14 main meridians.² These meridians

represent the major organs and functions of the body although they do not follow the exact pathways of nerves or blood flow.³

The authors proposed that stimulation of acupuncture points can relieve pain by causing “hyper-stimulation analgesia,” which can be explained by the concept of “gate control theory of pain.”

Activation of A-δ and C afferent fibers through acupuncture point stimulation send signals to the spinal cord with local release of dynorphin and enkephalins. Upon reaching the midbrain, both excitatory and inhibitory mediators are activated in the spinal cord. Neurotransmitters like serotonin, dopamine and nor epinephrine are produced causing pre- and post-synaptic inhibition of pain transmission. When the signals reach the hypothalamus and pituitary gland, adreno corticotropic hormones and endorphins may be produced.⁸

Acupuncture Needles

Acupuncture needles are typically made of stainless steel wire. They are usually disposable sterile involves minimal risk of infection. Needles vary in length between 13 and 130 mm (0.51-5.1 inch), with shorter needles used near the face and eyes, and longer needles in more fleshy areas; needle diameters vary from 0.16 mm (0.006 inch) to 0.46 mm (0.018 inch) with thicker needles used on more robust patients. Thinner needles may be flexible and require tubes for insertion. The tip of the needle should not be made too sharp to prevent breakage, although blunt needles cause more pain. Apart from the usual filiform needle, there are also other needle types, which can be utilized, such as three-edged needles and the nine ancient needles.

Needling Technique

The skin is sterilized with alcohol and the needles are inserted, frequently with a plastic guide tube. Needles may be manipulated in various ways, e.g. spun, flicked, or moved up and down relative to the skin. Since most pain is felt in the superficial layers of the skin, a quick insertion of the needle is recommended (Figure 1).

The skill level of the acupuncturist may influence how painful the needle insertion is, and sufficiently skilled practitioner may be able to insert the needles without causing any pain.⁹

De-Qi Sensation

The arrival of Qi or De Qi refers to the transmission of a needling sensation along the meridians, which is often described by the patient as soreness, numbness, fullness, warm sensations or aching as a result of needle

manipulation. This is perceived by acupuncturists as a needle grasp sensation, which is key in achieving therapeutic efficacy.⁸

APPLICATION IN DENTISTRY

Post-Operative Pain

Complex networks of nerve fibers are found in dental pulp within the tooth and the periodontium surrounding it, and pain is quickly elicited when stimuli activate these nerve endings. The management of dental pain is first to identify and remove the cause (such as caries and gingival inflammation), followed by any analgesic medication. According to TCM theory, local acupuncture points on facial regions such as ST6 Jiache, ST7 Xiaguan and distant points like LI4 Hegu Figure 2 can be used to treat dental pain.^{8,10} They belong to the stomach and large intestine meridians, which converge at the facial region and linkup with the maxillary and mandibular teeth. Acupuncture point LI4 Hegu, which is located on the radial side of the second metacarpal bone on the dorsum of the hand, can elicit an analgesic effect on the orofacial region.⁸ Acupuncture regulates the flow of vital energy through the body.¹¹

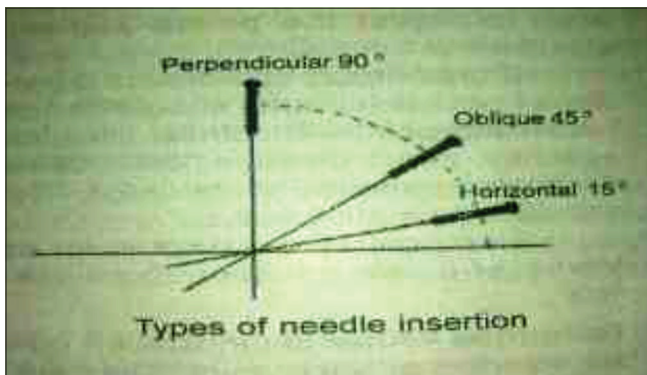


Figure 1: Needle technique

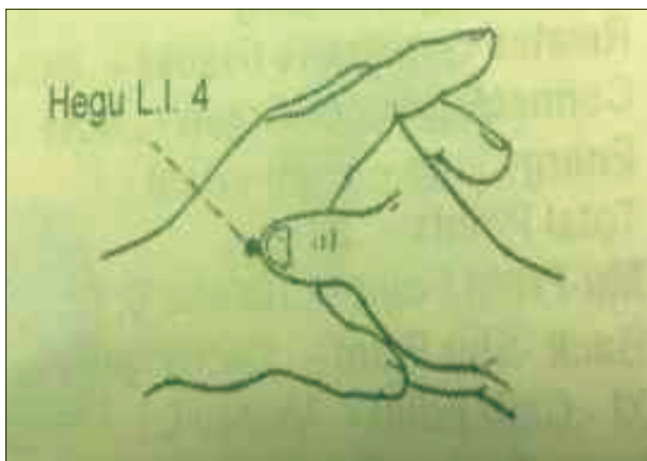


Figure 2: Post-operative pain

Trigeminal Neuralgia (TN)

TN is a neuropathic disorder characterized by episodes of intense pain in face, originating from the trigeminal nerve. According to the international association for the study of pain defines TN as “sudden usually unilateral brief stabbing recurrent pain in the distribution of one or more branches of the fifth cranial nerve. Acupuncture points GB14 Yangbai and EX-HN5 Taiyang are used if the ophthalmic branch is affected, ST2 Sibai and ST3 Juliao are used if the maxillary branch is affected and ST6 Jiache and ST7 Xiaguan Figure 3 are used if the mandibular branch is affected. These acupuncture points seem to coincide with the distribution of the nerve branches.⁸ The protocol utilized local points of TH17 and 21, GB2, SI18, ST2, 3 and 7, GV26 and LI20. Systemic points include TH5, LI4, ST36, ST44, ST45 and LIV3. Auricular acupuncture points were also used. By inserting acupuncture needles in well-defined points, it is possible to restore the free flow of energy and the patient is cured.¹²

Xerostomia

Xerostomia (dry mouth) decrease in or total lack of saliva is a serious condition affects approximately 40% of adults over 50. For xerostomia patient's quality of life is often impaired profoundly. Etiology is multifactorial medications especially opioids, diuretics, anticholinergic antihistamines, endocrine disorders, autoimmune disorders and radiation therapy. Symptoms include rampant caries. Oral mucosal infections, difficulty in eating, speaking and swallowing, altered taste sensation and difficulty in wearing dentures.¹³ Acupoints were selected according to the principles of TCM. Local (ST-3, ST-4, ST-5, ST-6, ST-7, GB-2, SI-19, TB-21), Figure 4 distal (LI-4, LI-11, LR-3, ST36, KI-5, GV-20) and auricular acupoints were also included.¹⁴ After acupuncture treatment patients with xerostomia increases the salivary flow rate.¹³

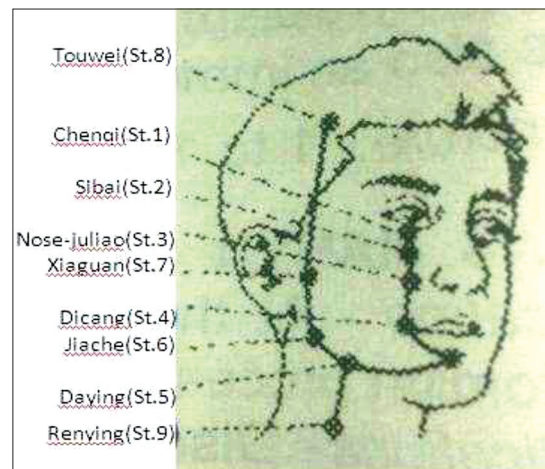


Figure 3: Trigeminal neuralgia

Temporomandibular Disorders (TMDs)

TMDs is a term which includes a group of conditions that affect temporomandibular joint (TMJ), the muscles of mastication and the associated head and neck musculoskeletal structures.⁸ Effective treatments for TMJ disorder is difficult to achieve since the condition is related to a variety of aspects of both the mind and body. The recommended acupuncture points (ST-6, ST-7, SI-18, GV-20, GB-20, BL-10 and LI-4) Figure 5.¹⁵ Acupuncture therapy helps to relieve the pain and discomfort associated with the conditions, especially if they are muscular in origin. It also helps in muscle relaxation and reduces muscle spasms. Relaxing the lateral pterygoid muscles can reduce the anterior displacing force on the meniscus of TMJ and help to minimize TMJ clicking.⁸

Bell's Palsy

Bell's palsy is an idiopathic, acute peripheral-nerve palsy involving the facial nerve which supplies all the muscles of facial expression. Patients with Bell's palsy typically complain of weakness or complete paralysis of all the muscles on one side of the face. The facial creases and nasolabial fold disappear, the forehead unfurrows, corner of the mouth droops, eyelids will not close and lower eyelid sags. On attempted closure, the eye rolls upwards (Bell's phenomenon). Eye irritation often results

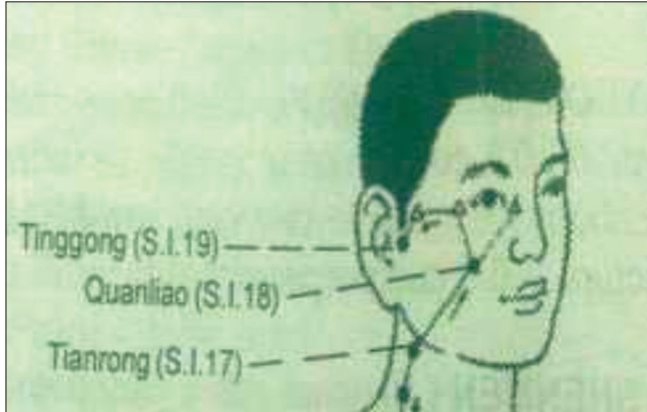


Figure 4: Xerostomia

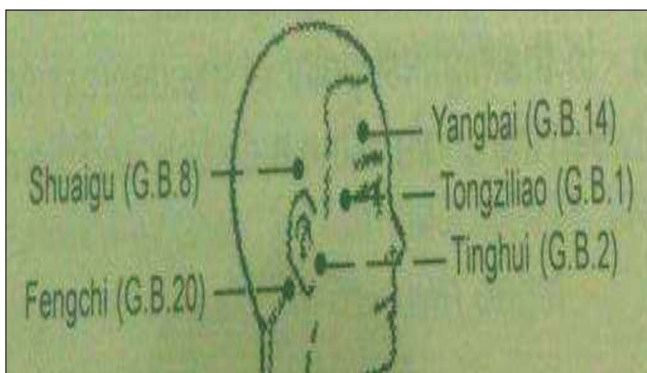


Figure 5: Temporomandibular disorders

from a lack of lubrication and constant exposure. Tear production decreases. Food and saliva can pool in the affected side of the mouth and may spill out from the corner. Acupuncture points are Jiache (S6) Dicang (S4) (Corresponding to buccinator and angle of the mouth), and Zanzhu (B2), Sizhukong (SJ23) (corresponding to eyebrow). Yanbai (G14), Yifeng (SJ17) and Jingming (B1) Figure 6.¹⁶ Acupuncture helps in the treatment of Bell's palsy by reducing inflammation, by promoting the release of vascular and immunomodulatory factors. Enhancing local microcirculation, by increasing the diameter and blood flow velocity of peripheral arterioles.¹⁷ Increase the excitability of nerves and to promote the regeneration of nerve fibers.⁸

Gag Reflex

Gagging has been defined as an ejector contraction of the muscles of the pharyngeal sphincter. It is a normal protective reflex designed to protect the airway and remove irritant material from the posterior oropharynx and the upper gastrointestinal tract.¹⁸ Its causes can be somatic, brought about by stimulating certain trigger areas in the oral cavity or psychogenic, which is induced by thought stimulus modulated by higher brain centers. Hyperactive gag reflex can be a hindrance to dental procedures, such as taking of alginate impression for denture fabrication. The use of acupuncture points like PC6 Neiguan and CV24 Chengjiang Figure 7 have been reported to significantly reduce gag reflex. Auricular acupuncture has also been suggested for treating severe gag reflex and the role of acupuncture as a method of controlling the gag reflex is safe and quick.⁸

Lichen Planus

Lichen planus is a common chronic immunological inflammatory mucocutaneous disorder that varies in appearance from keratotic (reticular or plaque) to erythematous and ulcerative. Exact etiology is unknown psychological stress, increased anxiety, immunological disturbances, infections and genetic predisposition.¹⁹ Acupuncture points (GV20, GB20, BL13, 17, 20, HT7,

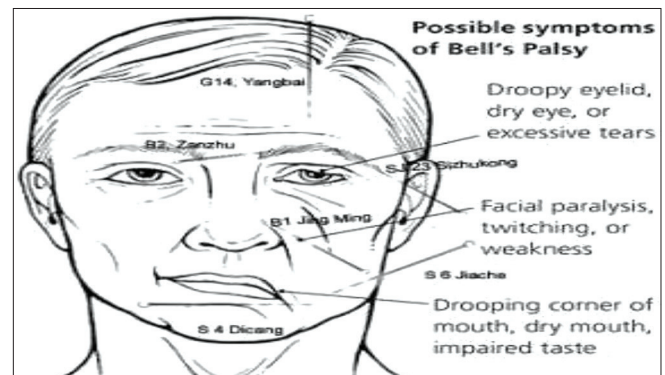


Figure 6: Bell's palsy

PC.6, SP.6, 10, ST.36, LI.4,11) Figure 8. Acupuncture is an effective method for the treatment of lichen planus.²⁰

Advantages²¹

1. Acupuncture is a non-invasive treatment.
2. Almost all patients or people in discomfort can undergo acupuncture treatment.
3. It provides relief to the patient from physical as well as mental ailments.
4. In an attempt to eliminate the root causes of a health problem, the treatment examines the entire human body and its relation to the environment.
5. Acupuncture is one of the most natural forms of alternative medicine during which endorphins are released into the blood stream in order to achieve maximum pain relief.
6. The treatment helps remove toxins and helps fast healing, because it increases blood flow, when the needles are inserted into the strategic locations of the human body.
7. Since acupuncture works on the vital energy (Qi) points of the body, it restores and maintains the overall health

Disadvantages

1. Acupuncture is safe only when it is performed by a trained and licensed acupuncturist.

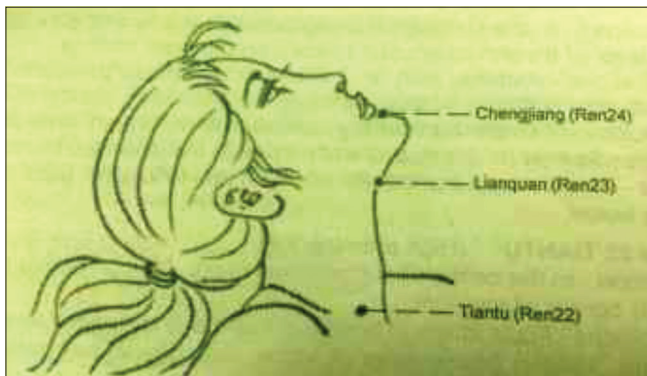


Figure 7: Gag reflex

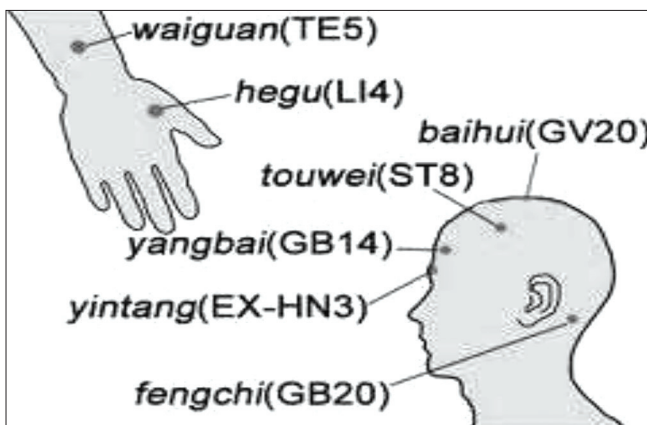


Figure 8: Lichen Planus

2. The needles for the treatment should be non-toxic and used only once. They should be properly labeled and sealed. The patient may suffer from various infectious diseases if the needles are re-used or not sterile.
3. Improper placement of the needle can lead to bleeding, swelling and painful sensation and infection in the acupuncture areas of the body.
4. Acupuncture is not recommended for damaged body parts, such as broken bones.
5. The treatment is not recommended for people suffering from bleeding disorders and patients on blood thinners.
6. Patients could experience a little amount of soreness post-treatment

Recommendations³

1. Dentists should only treat their patients with acupuncture after obtaining the relevant knowledge and ability.
2. Acupuncture should only be employed after a thorough diagnosis of the patient's condition. Meanwhile, employment of conventional therapies may be considered as appropriate.
3. A separate informed consent for acupuncture may be required.
4. Standard infection control procedures must be in place. Single use of needles must be employed.
5. As it is the case with all therapeutic measures, the use of acupuncture has to be documented appropriately and detailed records must be kept.
6. Multidisciplinary research into the effective use of acupuncture in dentistry is encouraged

CONCLUSION

Acupuncture is safe, quick, inexpensive and non-invasive when performed correctly. Dental practitioner are now equipped with more weaponry, i.e., by using acupuncture in the treatment of dental diseases, especially when dealing with post-operative dental pain and dental anxiety situations, and in the treatment of patients who are allergic to anesthetics and wish to avoid the use of drugs.

REFERENCES

1. Available from: <http://www.fdiworldental.org/The-use-of-acupuncture-in-dentistry-2008.pdf>. [Last accessed on 2014 Aug 26].
2. Liu J, Ni L. Acupuncture in dentistry. J N J Dent Assoc 1974;45:16-8.
3. Available from: <http://www.news-medical.net/health/What-is-Acupuncture.aspx>. [Last accessed on 2014 Aug 26].
4. Rosted P. Introduction to acupuncture in dentistry. Br Dent J 2000;189:136-40.
5. Rosted P. The use of acupuncture in dentistry: A systematic review. Acupunct Med 1998;16:43-8.

6. Traditional Chinese medicine: An introduction. Available from: <http://www.medlineplus.gov>. [Last updated on 2014 Sep 03].
7. Available from: http://www.statistics.gov.uk/downloads/theme_health/AdltDentHlth98_v3.pdf. [Last accessed on 2014 Aug 26].
8. Wong LB. Acupuncture in dentistry: It's possible role and application. *Proc Singapore Healthc* 2012;21:48-56.
9. Acupuncture. Available from: <http://www.en.wikipedia.org/wiki>. [Last accessed on 2014 Aug 26].
10. Butler L. Acupuncture for tooth pain; 2011. Available from: <http://www.livestrong.com>.
11. Acupuncture for pain. Available from: <http://www.nccam.nih.gov/health/acupuncture/introduction>. [Last accessed on 2014 Aug 26].
12. Available from: <http://www.ijder.com/wp-content/uploads/2011/08/13-Acupuncture.pdf>. [Last accessed on 2014 Aug 26].
13. Morganstein WM. Acupuncture in the treatment of xerostomia: Clinical report. *Gen Dent* 2005;53:223-6.
14. Braga FP, Lemos Junior CA, Alves FA, Migliari DA. Acupuncture for the prevention of radiation-induced xerostomia in patients with head and neck cancer. *Braz Oral Res* 2011;25:180-5.
15. Acupuncture for temporomandibular joint (TMJ) disorder. Available from: <http://www.altMD.com>. [Last accessed on 2014 Aug 26].
16. Bokhari SZ, Zahid SS. Acupuncture treatment of facial palsy. *J Ayub Med Coll Abbottabad* 2010;22:70-3.
17. Available from: <http://www.acupuncture.org.uk/a-to-z-of-conditions/a-to-z-of-conditions/bellas-palsy.html>. [Last accessed on 2014 Aug 26].
18. Fiske J, Dickinson C. The role of acupuncture in controlling the gagging reflex using a review of ten cases. *Br Dent J* 2001;190:611-3.
19. Ongole R, Praveen BN. Textbook of Oral Medicine, Oral Diagnosis and Oral Radiology. 1st ed. New Delhi: Elsevier; 2010. p. 206.
20. Iliev E. Treatment of lichen ruber planus with acupuncture. *Acupunct Med* 1994;12:6-7.
21. Available from: <http://www.lifestyle.iloveindia.com/lounge/advantages-and-disadvantages-of-4676.html>. [Last accessed on 2014 Aug 26].

How to cite this article: Katti G, Karuna, Chitroda PK, Shahbaz S. Use of Acupuncture as a Novel Practice in the Management of Dental Diseases: A Review. *Int J Sci Stud* 2014;2(6):112-117.

Source of Support: Nil, **Conflict of Interest:** None declared.