



# Role of Acupuncture in Oral Medicine: A Review

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Acupuncture is an alternative or complementary form of treatment. Acupuncture may be used in management of temporomandibular disorders, bell palsy, dental pain, xerostomia and various other disorders. Though there are studies which prove the efficacy of acupuncture, the exact mechanism behind the therapeutic effect of acupuncture is not known. Hence it is not used very frequently in oral medicine or dental practice. Further studies with larger sample size are required to understand other areas where acupuncture can be used.

**KEYWORDS:** Acupuncture, Temporomandibular Disorders, Xerostomia, Trigeminal Neuralgia, Dental Anxiety

## INTRODUCTION

Acupuncture is a part of traditional Chinese medicine. In acupuncture, specific acupuncture points are stimulated using fine needles to achieve a therapeutic response.<sup>1</sup> Acupuncture works on the principle of Yin-Yang and Qi concept. Qi is the flow of energy. Yin-Yang is the concept of two opposing forces. Acupuncture works by regulating this flow of energy. Acupuncture points are distributed in meridians throughout the body.<sup>2</sup>

## XEROSTOMIA

Increased salivary flow was noted in patients with xerostomia after acupuncture. Proposed mechanism behind this is release of neuropeptides which has effect on acinar cells of salivary gland and activation of parasympathetic nervous system.<sup>3</sup> Acupuncture points used for xerostomia are SI-19(tragus region), and local points such as ST-3, ST-4, ST-5, ST-6, ST-7.<sup>2</sup>

Studies had shown that use of acupuncture was helpful in increasing salivary flow in patients with Sjogrens syndrome.<sup>4</sup>

A retrospective study including 70 patients with xerostomia revealed significant increase in stimulated and unstimulated salivary flow rate after 24 sessions of acupuncture treatment for six months.<sup>5</sup> Acupuncture was also found to be effective in pilocarpine resistant xerostomia in patients who underwent radiotherapy.<sup>6</sup>

## TEMPOROMANDIBULAR JOINT DISORDERS (TMDS) AND MYOFACIAL PAIN

Acupuncture is found to be effective in TMDs with muscular origin. A study done by List et al acupuncture was found to give better subjective result compared to occlusal splint.<sup>3</sup>

A systemic review by Cho SH including nineteen reports suggest that acupuncture can be used as an effective intervention in patients with TMD.<sup>7</sup> Acupuncture point ST7 located between zygomatic arch and the mandibular notch is used.<sup>8</sup>

## DENTAL PAIN

Though the exact mechanism for therapeutic effect of acupuncture is not known, it is proposed that when a needle is inserted into acupuncture points an inflammatory process is started which releases neurotransmitters. This leads to release of enkephalin through central nervous system which blocks substance P, hence inhibiting pain sensation.<sup>9</sup>

Acupuncture points for dental pain are ST6 Jiache (angle of the mandible region), ST7 Xiaguan( tragus region ), LI4 Hegu( between 1st and 2nd metacarpal bone).<sup>2</sup>

In an MRI study by Shen, the activity of certain regions of brain can be reduced by acupuncture hence



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deactivating limbic system which in turn reduces pain perception.<sup>10</sup>

Analgesics prescribed for dental pain and postoperative pain have many side effects; therefore acupuncture is a promising modality to reduce the usage of these drugs in dental pain.

A study by Arslan H, evaluated the effect of acupuncture on post-operative pain following RCT and found significant reduction in pain in patients in acupuncture group compared to control group.<sup>11</sup>

A study done by Tavares et al in 20 patients who underwent extraction of impacted third molar showed significantly lower pain intensity in patients who underwent postoperative acupuncture.<sup>12</sup>

A systematic review by Ernst and Pittler including 16 randomised control trials concluded that acupuncture is helpful in dental analgesia.<sup>13</sup> In contrast to this a randomized controlled trial by Goddard and Albers in 40 participants showed no reduction in sensory threshold of dental pulp following acupuncture.<sup>14</sup>

### **BELL'S PALSY**

Acupoints used for bell's palsy are Jiache S6 (buccinators region), Sizhukong SJ23(supraorbital region), Dicang S4( angle of the mouth). In case of Bell's palsy acupuncture acts by increasing the local microcirculation and by reducing the inflammation.<sup>2</sup>

A Cochrane review including 288 patients with Bell's palsy showed that efficacy of acupuncture was better than conventional medication.<sup>15</sup>

### **TRIGEMINAL NEURALGIA**

Acupuncture is found to be effective in management of trigeminal neuralgia in some patients. The acupuncture points used are GB14 Yangbai, EX-HN5 Taiyang, ST2 Sibai, ST6 Jiache and ST7 Xiaguan which lies along the distribution of trigeminal nerve.<sup>2,12</sup>

### **DENTAL ANXIETY**

Dental anxiety is one of the common issues faced by patients in dental clinic which might interfere in dental treatment. Acupuncture is found to be effective in reducing anxiety before and during dental treatment. Acupuncture increases the level of endorphin, ACTH and cortisol hence reduces stress and anxiety.<sup>9</sup>

Intranasal midazolam is the treatment of choice for dental anxiety, but is associated with various side effects. A randomised controlled trial showed that effectiveness of acupuncture was same as intranasal midazolam in management of dental anxiety.<sup>16</sup>

Further studies with larger sample size are required so that acupuncture may be used as an alternative to conventional medication for the management of dental anxiety.

### **SWELLING AND BLEEDING FOLLOWING EXTRACTION**

Most of the time extraction of third molar is followed by swelling. Study done by Gil et al on 22 patients who had undergone extraction of third molar suggested that use of acupuncture reduced postoperative swelling and bleeding.<sup>17</sup>

Acupuncture helps to maintain homeostasis, and causes muscle relaxation.<sup>18</sup> It is also suggested that acupuncture increase local microcirculation, which helps in relieving the swelling.<sup>19</sup>

### **GAG REFLEX**

Gag reflex is one of the major problems faced while taking an impression especially in the maxillary arch. Auricular acupuncture was found to be effective in controlling gag reflex in all the participants in a study done by Hashim et al. 20 Another acupuncture point used in gag reflex is PC6 neiguan which is located on the palm. This point is also used for nausea, vomiting and palpitation.<sup>21</sup>

Though the exact method of action is not known, vagus nerve and trigeminal nerve control the muscles which are responsible for gag reflex. The acupuncture point on ear which is used for preventing gag reflex is also supplied by vagus nerve.<sup>22</sup> Another proposed mechanism is that acupuncture increases secretion of beta endorphins which produce antiemetic effect by binding to opioid receptors.

### **ANESTHESIA**

Acupuncture has synergistic action with local anesthetic agents during dental procedures.

Acupuncture when done before administration of local anesthetic agent reduces the induction time of local anesthetics.<sup>23</sup>

In a randomised control study by Jamal M, to evaluate efficacy of acupuncture in success rate of inferior alveolar nerve block showed significantly higher success rate in patients whom acupuncture was performed before giving anesthesia.<sup>24</sup>

## CONCLUSION

Acupuncture is considered to be a form of alternative medicine. It can be used in patients unresponsive to the conventional treatment. It can also be used as an alternative or complementary treatment along with conventional treatment modalities. Various studies were conducted to evaluate the efficacy of acupuncture in various orofacial diseases and have concluded that acupuncture can be used as an alternative or complementary to conventional treatment. Use of acupuncture in oral medicine is restricted. Further studies are required to understand other areas in oral medicine where acupuncture may be used and the exact mechanism behind therapeutic effect of acupuncture.

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