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Auriculotherapy and its place in pain control: from the battlefield to neonatal intensive care

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Background

Auriculotherapy or the application of treatment modalities (needle, magnet, therapeutic laser) to the auricle has gained global attention in pain control since United States Colonel (retired) Richard Niemtzow devised and promoted Battlefield Acupuncture (BFA) to the world[1]. BFA is a rapid onset pain control protocol using needle application at the auricles. Dr. Niemtzow travelled the world promoting auriculotherapy as a very useful intervention for all clinicians to add to their armatorium in pain management. Dr Paul Nogier is referred to as the Father of Auriculotherapy[2]. History has it that he noticed the scarring on the crus of a patient's ear and asked her what happened there. She replied it was cautery to the ear to treat her sciatica. This observation triggered his curiosity and subsequent investigations which resulted in him mapping both ears (auricle) for the correspondences to different anatomical regions. By applying needles to the auricle he was able to demonstrate the improvement of the condition being treated for any region.

The Vasculo Autonomic Signal

Dr. Nogier also observed the physiological change (increased pulse amplitude) which occurred over sites where there was any physiological anomaly or dysfunction. This phenomenon is sometimes referred to as the Nogier Sign but is more commonly referred to as the VAS or Vasculo-Autonomic Signal[3-6]. With the advent of photobiomodulation (PBM) -still popularly referred to as therapeutic laser application, it is now possible to quantify the laser energy required (transferred to the concha innervated by the vagus) to restore functionality of the vagal nervous system. Interesting to note, it is a very helpful signal. In dysfunction the pulse is higher amplitude, feels almost saw-tooth like (choppy) and when the dysfunction is sorted out or resolved, the pulse returns to being sine wave like (smooth).

In other words, when using therapeutic laser, the uploading of the laser energy (to a site) reaches an optimum - the pulse records the vagal nervous system normalising again. One can then *quantify* the vagal upload time (The watt is a measure of the rate of energy transfer over a unit of time, with one watt equal to one joule (J) per second). Studies that have demonstrated the improvement in vagal upload times with patient recovery are diverse: from recovery from depression, stress and anxiety (mental health), to lumbar pain[8] to recovery from covid[9]. The ability to quantify vagal upload times allows the possibility of predicting the outcomes for different conditions. Decreasing upload times corresponds to improving health outcomes.

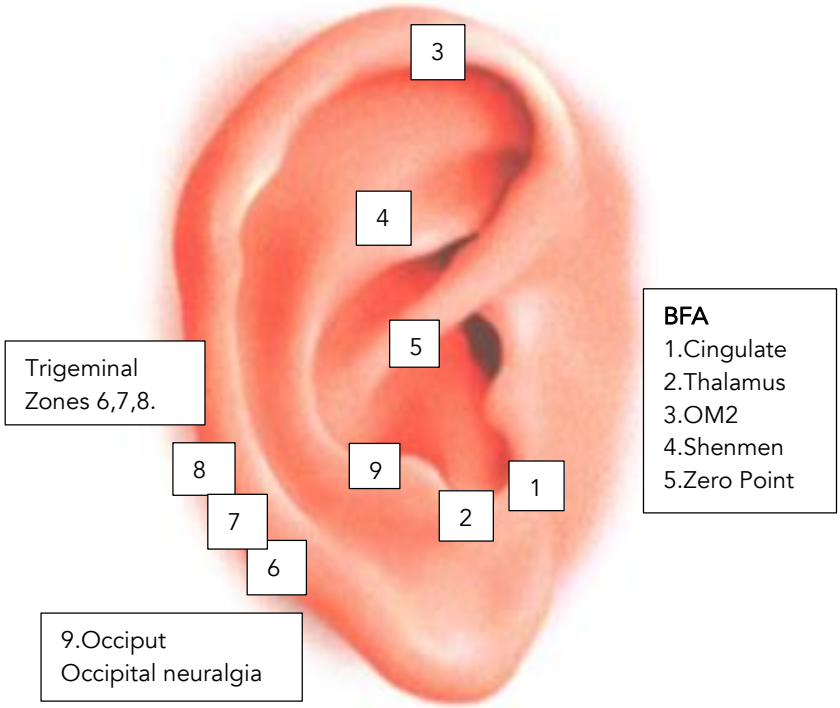

Fig.1 Relevant Pain Control Locations

Biological evidence

Functional MRI investigations into auriculotherapy were helpful in locating central pain control brain regions in BFA[10].Dr Marco Romoli and his team located the brain stem correspondence in the auricle and Prof David Alimi noted the differential between functional knee and anatomical knee points[10-11].

In BFA the cingulate and thalamus are needled because being in the limbic system- they are part of the central pain control region. Physical and emotional pain control reside in this region, so physical pain can trigger emotional pain and vice versa. Somatisation is when emotional upheaval presents as physical pain. Prof Rong Pei Jing and her team were able to successfully treat migraine with auriculotherapy[12]. Needless to say, it would be most beneficial to patients if more neuroimaging studies were conducted into the efficacy of auriculotherapy.

Peri operative pain control

At Roseville Wellness Group, patients are offered pre- operative semi-permanent needles (ASPs or aiguille semi-permanent) to help with their peri-operative pain control. Only the cingulate and thalamus are needled. The feedback has been positive. Patients with their central pain control ASPs in place pre operatively had faster post-operative recovery and reduced need for analgesia. Positive outcomes were noticed empirically for a wide range of surgeries from cardiac bypass surgery to total joint replacements and abdominal surgeries.

Neonatal Intensive Care pain control

At the University of New South Wales, Randwick, Australia, Prof. Ju Lee Oei sought out auriculotherapy for pain relief for the babies in Neonatal Intensive Care Unit (NICU) at the Centre for NewBorn, Royal Hospital for Women. Repeated heel prick pain is repeated trauma memory for the babies. Examination for retinopathy of prematurity (RoP) is also traumatic with calipers stretching the eyelids to gain access. For the NICU babies, analgesia is avoided due to concerns which include reduced brain size and weight gain, slower neurological responses compared to placebo and long term anxiety personalities[13-23]. Pulmonary dysplasia has also been reported[24]. Prof Oei's team successfully applied magnets to the babies' ears to reduce pain and trauma from heel prick pain[25-26] and from the trauma of examination for RoP [27]. In both these scenarios, the babies post procedure settled quicker and returned to feeding faster. In other words, the vagal dysregulation from the pain insults corrected significantly faster.

Conclusion

From the battlefield to neonatal intensive care, auriculotherapy has earned its place as a viable, safe, user friendly and inexpensive intervention in pain control today.

Conflict of Interest Statement:

None.

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