Osteopathy in the Cranial Field – a brief summary of current evidence

Osteopathy in the cranial field (OCF) has a long history of practice and work is progressively being published to document its applications to practice and outcomes. A review of published research is currently being undertaken and this article highlights some of the more recent studies that have been disseminated.

Searching the literature
An extensive literature search was undertaken utilising subscription databases and free to access databases. Searches were also made of designated osteopathic research sites, professional web sites, and hard copies of journals.

Search terms were created from examination of a number of existing literature sources and from input from members of the profession with expertise in this area of practice. Search terms included: “osteopathy in the cranial field”, “craniosacral”, “cranial bones”, “cranial sutures”, “cerebrospinal fluid”, “cerebrospinal pulse”, “involuntary mechanism” and “cranial impulse”. This list is not complete and further information concerning the entire list of search terms will be available in a more extensive report on this topic. Duplicated papers were removed and papers were then classified based on their methodological approach.

What literature is available?
A total of 506 relevant papers were examined. The literature looking at OCF covers a wide range of methodological approaches. The largest number of studies can be classified as opinion pieces, largely unreferenced and not published in peer-reviewed journals. A small number of case studies exist, as do editorials and hypotheses. A small number of clinical trials have been published, including a small number of literature reviews and one systematic review.

The literature available in this area is predominantly viewed as lower grade evidence in terms of the hierarchy of research. The case study, however, should not be undervalued; it is frequently the most interesting type of study to many clinicians.
How is OCF defined in the literature?
A selection of definitions appears in the literature. The definition used by Greenman and McPartland is given below:

“….a structured diagnostic process that evaluates the mobility of the osseous cranium, the related mobility of the skull and sacrum and the palpation of the craniosacral rhythm impulse (CRI) throughout the body. Craniosacral osteopathic manipulative techniques attempt to restore motion to restrictions within individual sutures of the skull, the skull as a total entity, and the skull in relation to the sacrum, and apply inherent force to the articulations of the vertebral axis, rib cage and extremity.”

In 1999, Green et al undertook a systematic review looking at studies relating to OCF, this paper is one of the most widely quoted. It employed a three-dimensional framework for evaluating studies evaluating:

- Craniosacral interventions and health outcomes
- Validity of cranial assessment
- Pathophysiology of the craniosacral system

The systematic review identified 33 studies providing primary research data on “craniosacral therapy”. The findings of the review can be summarised:

- Nine studies were identified that reported on mobility or fusion at cranial sutures in adults. The quality of the studies was variable as were the designs, but although incomplete, the research supported the theory that the adult cranium is not always solidly fused.
- Eleven studies reported primary data on the motion of cerebrospinal fluid (CSF). The studies were essentially undertaken to provide neurosurgeons with data on pathophysiology relating to CSF motion for diagnostic, treatment and brain monitoring purposes.
- Seven studies were identified that looked at the effectiveness of craniosacral therapy in altering health outcomes. The studies were classified as being of low grade and poor quality.
- Three studies directly examined the potential association between health and craniosacral mobility restrictions. Two of the studies were cross-sectional studies allowing the craniosacral system and health outcomes to be measured at the same point in time. The studies were judged to be of poor quality since the health states were subjectively determined. The third study was observational. The validity and reliability of the cross-sectional studies were regarded as problematic undermining their credibility and quality in the opinion of the reviewers.

The reviewers concluded that insufficient evidence had been found to support craniosacral therapy, although they qualified this with the statement that research methods that could evaluate effectiveness had not been applied to date.

Subsequent to the systematic review, a small number of clinical trials have taken place. A prospective controlled trial was undertaken by Hayden et al. This pilot study involved 28 infants with colic. The outcomes assessed were hours of “colicky” crying within a 24 hour period, and hours of sleeping within a 24 hour period. The key results of the study identified that the difference between the infants who received treatment and those that did not was a mean reduction in crying time of 1 hour (95% CI 0.14 to 2.19). The difference in mean increase in sleep between infants who received treatment and those
who didn’t was 1.17 hours (95% CI 0.29 to 2.27). This well-conducted trial is frequently cited as good quality evidence by many sources.

A variety of other symptoms being treated using OCF have been investigated. Adults with asthma, lateral epicondylitis and chronic epicondylopathy humeri radiialis underwent treatment and their outcomes have been documented in a series of studies.

Physiological investigations and inter-rater reliability
Inter-rater and intra-rater reliability has been investigated for all aspects of osteopathic care. Moran and Gibbons (2001), and Rogers et al (1998) investigated reliability for palpation of the cranial rhythmic impulse but findings were not encouraging. Wirth-Patullo et al (1994) and Nelson et al (2006) investigated craniosacral rate measurements and the relationship to subjects’ and examiners’ heart and respiratory measurements, and the rate of the cranial rhythmic impulse respectively. They found a direct correlation between the palpated rate and a physiological pulse. This physiological pulse is termed the Traube Hering Meyer (THM) oscillation rate; it has been measured using Laser Doppler Flow.

Case studies
A small number of case studies have been published that document the use of OCF in the care of patients. Gillespie describes the treatment of a nine year old boy with asthma using craniosacral therapy, and a 27 month old boy for extreme hyperactive behaviour. Lancaster and Crow describe their treatment of a 26 year old woman with Bell’s palsy, and Leach describes the role of both cranial and manual treatment in supporting a 66 year old patient recovering from gastric cancer.

Adverse events associated with treatment
One study undertaken by Greenman and McPartland involved the treatment of patients with traumatic brain syndrome. The authors noted some adverse effects of the treatment; this is a new departure for OCF which hasn’t previously reported any adverse events.

Dissenting voices
Cranial osteopathy is not without its critics who question its scientific plausibility, its place within osteopathic medicine, and its lack of evidence of effectiveness. The growth of good quality clinic trials and scientific investigation will attempt to act as a rebuttal to such critics.

References:

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