Effect of Osteopathic treatment on the gastrointestinal system function of Autistic children

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The research

- Clinical Trial on the effect of Visceral Osteopathic Treatment on Autistic Children
- Our study aimed to stimulate specific areas of the gut and measure the effect of the treatment on the:
  a. GI symptoms
  b. Behaviour symptoms of Autistic Children
Autism was first described in 1943 by Dr. Leo Kanner, an American child psychiatrist at John Hopkins University (Aarons and Gittens, 1999).

He used a Greek word ‘autos’ meaning ‘self’ to describe the condition, which is marked by children being engrossed only in themselves (Aarons and Gittens, 1999).

Dr. Kanner included a number of behavioural features in an attempt to identify the condition even further. These features are still relevant today because it shows the condition in its classic form.

**Autism Spectrum Disorder**

Pervasive Developmental Disorder with abnormal or impaired development in:

- reciprocal social interaction
- social communication
- social imagination

**Social Interaction**

- Indifference to others.
- Difficulty accepting social approaches by others.
- Unusual interests i.e. railway timetables, vacuum cleaners, washing machines etc.
- May make social contact, but lack in understanding of subtle rules.
Social Communication

- No desire to communicate to others.
- Factual comments not part of the social context.
- Difficulty in maintaining reciprocal conversations.

Social Imagination

- Pretend play is absent.
- May copy actions of others but with no meaning.
- Repetitive behaviour.
- Obsessive behaviour.
In the 15 years studies have claimed a possible association between the onset of GI symptoms and Behavioural Symptoms.
• Butterflies in your stomach before a performance?
• Headaches with indigestion?
• A gut feeling?

The brain and the gut originate from the same tissue type that later divide into the central nervous system and the enteric nervous system. These are later connected via the vagus nerve creating the GUT-BRAIN CONNECTION.

The Enteric Nervous System

This complex network of neurones (200-600 million) are located within the wall of the oesophagus, stomach, small and large intestine, pancreas, gallbladder and biliary tree.

It operates
• According to its own reflex rules independently of the sympathetic and parasympathetic nervous system
The Enteric Nervous System

The Second Brain

Controls the activity of gut smooth muscles and glands

- Myenteric Plexus
- Submucosal Plexus

Myenteric Plexus

Between the circular and the longitudinal layers of the muscularis externa, we find the neurones responsible for:

• Motility – peristalsis

Submucosal Plexus

The neurons of the submucosal plexus are concerned with the secretion of hormones.
The prevalence of GI symptoms in Autistic children is not totally understood.

Some studies have reported that the GI symptoms may be due to:

- Altered gut permeability
- Gut Immune dysfunction
- Food intolerance - Gluten and Casein
- IBS
- Nodular Hyperplasia
- Oesophageal Reflux
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Ratio male & female affected by Autism

Epidemiology

20-35 per 10,000 in 2006

2-4 per 10,000 children in 1979

1 per 150 children in 2006 (USA)

Diagnosis

Via a series of parental interviews and via diagnostic observation scales.

ADOS used in the UK
The Autistic Diagnostic Interview - Revised (ADI-R)
Gilliam Autism Rating Scale
Numerous chromosome abnormalities have been reported in individuals with autism, most often involving chromosome 15 (specifically 15q11-q13, the Prader-Willi/Angelman syndrome region).

Immune Reactions to:
- Gluten
- Casein
- Virus
- Chemicals
- Mercury
Reactions to:
Pollution
House Hold Chemicals
  • Paint
  • Carpets
  • Cleaning agents

Aims and Objectives
To investigate the influence of VOT on the GI and behavioural symptoms of autistic children by assessing the following symptoms:

- Constipation, diarrhoea, bloating, abdominal pain, poor appetite, flatulence and vomiting
- Abnormal behavioural symptoms suffered by autistic children

The research was granted approval by the Research Ethics Committees of:

[Logos of British College of Osteopathic Medicine and University of Westminster]
Methods

Study Design
Clinical trial – employing an experimental longitudinal design.

Subjects
Male and female Autistic children between 3½ – 8 years old (n=49) were recruited from 3 special schools for autistic children and in response to announcement placed at local magazines, schools, universities and the internet.

All subjects acted as their own controls before and after treatment measurements.

All subjects were diagnosed as autistic by specialist medical practitioners prior to the commencement of the trial.

Inclusion Criteria

- Autistic Children suffering from classic signs and symptoms:
  1. Abnormal Behavioural Symptoms characteristic of Autism recognised by DSM-IV & ICD-10
  2. Gastrointestinal Symptoms
     i. Constipation
     ii. Diarrhoea
     iii. Flatulence
     iv. Abdominal distention
     v. Vomiting

Of the 64 recruited subjects 54 filled the inclusion criteria and 49 completed the study.

Exclusion Criteria

- Autistic children without gastrointestinal symptoms
- Children unable to cooperate during the treatment sessions
- Withdrawal of parental consent
- Development of confounding issues such as infections or any other serious medical conditions
Parents

All parents were inducted to the process and:

• Received written guidelines
• Answered confidential medical questionnaire based on the ROME criteria.
• Were interviewed by the researcher including a full case history.
• Parents or guardian were asked to be present during the whole of the treatment procedure.

Questionnaires

• Parents asked to grade the severity of gastrointestinal and behavioural symptoms of the children on a ten point scale questionnaire during two phases:
  • Phase I. 4 questionnaires before the treatment phase. Weekly based.
  • Phase II. 4 questionnaires during the treatment phase of the clinical trial. Total of 6 weeks of treatment sessions.
Patient lying in lateral recumbent position. The practitioner will be kneeling down behind the patient. Using both hands the practitioner will 'scoop' the illocaecal area out of the right iliac fossae. Gentle motion will be applied diagonally towards the patient left shoulder.

Wilcoxon signed rank test with continuity correction.
Autistic children has shown significant improvement in Vomiting Scores after 6 weeks of VOT. (p = 0.00029)

Autistic children has shown significant improvement in Poor Appetite after 6 weeks of VOT. (p = 0.039)

Autistic children has shown significant improvement in Lack of Eye Contact Scores after 6 weeks of VOT. (p = 0.035)
Data analysis suggests that the use of VOT may be of benefit to autistic children suffering from GI symptoms.

Correlation with an inflammatory biochemical markers was being also measured suggesting positive responses.

The study may also be extended over a longer period of time to investigate the long term effect of VOT.

This research is novel and has a potential to:

- create a step change in how VOT is used.
- create a treatment protocol for autistic children suffering from GI problems that can be widely used within the osteopathic/manipulative professions.
- help ameliorate the GI and behavioural symptoms suffered by autistic children using a non-invasive form of treatment.
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