The Placebo Effect and Pediatric Functional Abdominal Pain

The placebo effect is a well-described phenomenon in medicine, and the possibility of open-label placebo use has been studied for disorders involving brain-gut interaction (DBGI). The authors of this study evaluated the use of open-label placebo for pediatric DBGI, specifically children with functional abdominal pain and irritable bowel syndrome defined using Rome III criteria. Children (8-18 years old) with functional abdominal pain/irritable bowel syndrome were recruited from two tertiary children's hospitals in the United States in a prospective crossover randomized clinical trial, and every study subject had normal laboratory testing, including a negative lactose breath test (or no clinical response to a lactose free diet). Each patient was given an explanation of the placebo effect in the setting of the brain-gut axis before starting a 7-day observational study in which they recorded their abdominal pain using a visual analog scale (0 mm to 100 mm pain score). If a patient had a mean daily pain score of 25 mms or higher, they were randomized into 2 groups. One group (the control group) filled out an initial questionnaire, was given a daily symptom diary, and was given a rescue medicine as needed for abdominal pain (hyoscyamine). The other group (the open-label placebo group) took a placebo (85% sucrose) immediately in the office setting followed by an initial questionnaire, a daily symptom diary, and a rescue medicine (again, hyoscyamine) as needed for abdominal pain. After 3 weeks, these patient groups were crossed over, and after another 3 weeks, the study concluded, and questionnaires were returned.

A total of 30 patients out of the 31 patients enrolled were able to complete the study. Both study groups had significantly improved mean pain scores when participating in the open-label placebo arm compared to the control arm (39.9 [18.9] vs. 45.0 [14.7]; difference, 5.2; 95% CI, 0.2-10.1; P = .03); and in total, 70% of patients had lower pain scores while participating in the open-label placebo arm. Additionally, study subjects took significantly more hyoscyamine while participating in the control group compared to the open-label placebo group (P = 0.001). Global improvement (based on the question, "Overall, how do you feel your problem is (better, same, or worse)?") was not significantly different between groups. There was a significantly greater belief in the patient group receiving the open-label placebo (based on the pre-randomization question, "How well do you think the treatment will work (excellent, good, fair, poor, or not at all)?") that the placebo would be beneficial (P=0.045).

In summary, children with functional abdominal pain/irritable bowel syndrome may have a significant response to an open-placebo intervention and understanding this concept in the setting of DBGI should be a caution for the practitioner to avoid unnecessary testing and medication in such a setting. More research is needed in understanding the neural mechanisms between the brain and intestinal tract.

Nurko S, Saps M, Kossowsky J, Zion S, Di Lorenzo C, Vaz K, Hawthorne K, Wu R, Ciciora S, Rosen J, Kaptchuk T, Kelley J. Effect of open-label placebo on children and adolescents with functional abdominal pain or irritable bowel syndrome: a randomized clinical trial. JAMA Pediatrics 2022; 176: 349-356.

Endoscopic Gastrojejunal Tube Placement in Children

In some children, direct gastric feeding is unsafe, and in such a scenario, gastrojejunal tube (GJT) placement subsequently can be performed through an initial one-step procedure or via a pre-existing gastric button site to allow for direct access to both the stomach and small intestine. This retrospective study evaluated all children undergoing GJT over a 10-year period at a tertiary children's hospital in France. Children with a pre-existing jejunostomy or nasoduodenal tube were excluded from this study. Patient demographics, including reason for GJT intervention, response to GJT placement, and GJT complications were included. Weight for height *z*-scores and weight for age *z*-scores were determined 1 month after GJT placement, 6 months after GJT placement, and at the time of weaning from jejunal feeding. A *z*-score less than -2 was defined as malnutrition.

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In total, 107 patients (48.6% female) who underwent GJT were included in the study. Median patient age was 10 months with 55% of patients being less than one year of age. The mean weight for height *z*-score was -1.0 ± 1.6, and the mean weight for age *z*-score was -2.6 ± 1.8. The main indication for GJT placement was gastroesophageal reflux disease; 95% of patients had at least one co-morbidity. Patients who underwent an initial one-step GJT placement were significantly younger and had a significantly lower weight compared to patients who received GJT placement through a pre-existing gastrostomy site. Peri-procedure complications occurred in 8 patients with one of these patients developing a complication as a direct result GJT placement (pneumoperitoneum). A total of 85 patients (79%) experienced at least one minor post-procedural complication with the most common minor complications being tube breaking, tube dislodgement, and tube blockage. A total of 6 patients (5.6%) experienced a late complication including jejunal intussusception, intestinal perforation, and pneumoperitoneum. Major complications were significantly more likely to occur in children who were younger (< 12 months, P=0.03) and underweight (<6 kg, P=0.03).

The average number of GJT changes after placement was 2.1 ± 2.3 (range 0 – 10), and the median time that a GJT remained in place was 70 days (range 1 – 558 days). GJT feeds were weaned in 87% of patients with most of these patients transitioning to some type of gastric tube feedings. Weight for age *z*-score significantly improved from -2.4 to -1.7 throughout the duration of GJT feeds (P<0.001) although the weight for height *z*-score did not significantly change through the duration of GJT feeds (P=0.2).

Thus, the authors state that GJT placement is a feasible option for children with complex medical issues. Minor complications were frequent, but the weight for age z-scores improved over time and many patients were able to convert to other type of enteral feeds. We need more research comparing this type of feeding access to patients receiving feeds via direct jejunostomy or fundoplication.

Elmehdi S, Ley D, Aumar M, Coopman S, Guimber D, Nicolas A, Antoine M, Turck D, Kyheng M, Gottrand F. Endoscopic gastrojejunostomy in infants and children. Journal of Pediatrics 2022; 244: 115-119.

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