An investigation of the Effect of Long-Term Electrical Stimulation on Esophageal Acid Exposure in Pediatric Patients with Gastroesophageal Reflux Disease (GERD)

Published: 26-09-2016
Last updated: 17-04-2024

Primary Objective: Therapeutic effect of electrical stimulation. Secondary Objective(s): (i) Side effects of electrical stimulation(ii) Effect on quality of life (iii) Effect of electrical stimulation on inflammatory and histologic parameters.

Ethical review	Not approved
Status	Will not start
Health condition type	Gastrointestinal conditions NEC
Study type	Interventional

Summary

ID

NL-OMON42836

Source
ToetsingOnline

Brief title
Effect of electrical stimulation on GERD in pediatric patients.

Condition

- Gastrointestinal conditions NEC

Synonym
Gastroesophageal Reflux Disease; Heartburn

Research involving
Human

Sponsors and support

Primary sponsor: Medisch Universitair Ziekenhuis Maastricht
Source(s) of monetary or material Support: Ministerie van OC&W,EndoStim; unconditional grant; invetigator-initiated onderzoek

Intervention

Keyword: EndoStim, GERD, LES

Outcome measures

Primary outcome

Therapeutic effect of electrical stimulation

a. Esophageal acid exposure

b. The baseline LES end expiratory pressure (LESPpre) and the on-stimulation

LES end expiratory pressure (LESPpost)

c. Acidity of the stomach

d. Effect of electrical stimulation on gastro-intestinal motility

Secondary outcome

(i) Side effects of electrical stimulation

(ii) Effect on quality of life

a. Change in patient*s GERD-HRQL, IGRQ and TACQOL

b. Change in symptoms frequency and severity

(iii) Effect of electrical stimulation on inflammatory and histologic

parameters.

a. Blood and breath samples

b. Endoscopy with biopsies

Study description

Background summary

Gastroesophageal Reflux Disease (GERD) is a problem affecting approximately 5-8% of children and adolescents worldwide. Neurologically impaired pediatric patients are at high risk of developing serious complications such as aspiration, reactive airway disease, acute life-threatening events, and failure to thrive. Acid suppressive therapy is a safe and effective solution for many patients but some are partially refractory to optimal drug therapy or suffer from side effects. Nissen Fundoplication surgery is a common procedure for patients who are unable to control GERD on medication alone; however the prevalence of failure of Nissen fundoplication is much higher than in the adult population and reaches almost 100 % of the cases. In addition, surgical therapy while effective in decreasing GERD symptoms; suffers from high rate of postoperative adverse events and the durability of the positive outcomes of the procedure.
EndoStim LES stimulation system has been approved for adult with GERD. Results from a chronic open-label study in adults suffering from GERD demonstrated that the use of long-term electrical stimulation treatment can be effective in reducing acid exposure and improving symptoms in GERD patients with follow up of 48 months. EndoStim electrical stimulation therapy was shown to be safe and well-tolerated, and resulted in a clinically significant and sustained improvement in patient symptoms, end-expiratory and mean LES pressure, esophageal acid exposure and esophagitis healing.
This study will further evaluate the efficacy of this procedure in the pediatric population.

Study objective

Primary Objective:
Therapeutic effect of electrical stimulation.

Secondary Objective(s):
(i) Side effects of electrical stimulation
(ii) Effect on quality of life
(iii) Effect of electrical stimulation on inflammatory and histologic parameters.

Study design

Prospective, multi-center open label treatment pilot trial.

Intervention

EndoStim LES Stimulation System.

Study burden and risks

Results from this study could validate a new, minimally invasive therapy for the effective treatment of GERD in the pediatric population. If proven effective, the therapy could provide the subject with improved LES function and reduced symptoms of GERD and therefore reduce or eliminate the need for acid suppressive therapy or other more invasive treatment. The invasive treatment is surgery, whereby the anatomy of the patient is operatively changed. A normal anatomy is maintained when using the EndoStim procedure.
The potential adverse events and risks associated with this study and the use of the LES Stimulation System are identical to those normally associated with standard gastrointestinal stimulation therapy or an invasive, clinical procedure (e.g., IPG and electrode placement, etc.).
The following measurements will be additional and could be considered as a burden:
* Screening: 24 hours gastric pH measurement, hydrogen breath test, exhaled breath condensate, questionnaires and symptom diary.
* Implant: Endoscopy with biopsies
* 2 weeks post-operatively: blood samples, exhaled breath condensate, questionnaires and symptom diary
* 3 months post-operatively: blood samples, exhaled breath condensate, 24 hours gastric pH measurement, 24 hours esophageal pH and impedance measurement (combined), manometry, hydrogen breath test, questionnaires and symptom diary.
* 6 months post-operatively: blood samples, exhaled breath condensate, questionnaires and symptom diary.

Contacts

Public
Medisch Universitair Ziekenhuis Maastricht

Universiteitssingel 50
Maastricht 6200 MD
NL
Scientific
Medisch Universitair Ziekenhuis Maastricht

Universiteitssingel 50
Maastricht 6200 MD
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adolescents (12-15 years)
Adolescents (16-17 years)
Children (2-11 years)

Inclusion criteria

a) Subject is between 5 * 16 years of age.
b) Subject has a history of heartburn, regurgitation or both for >6 month prompting physician recommendation of continual daily use of PPI before study entry.
c) Subject who are on standard medical therapy for 6 months or longer and experience discomfort or who are otherwise dissatisfied with GERD symptoms.
d) Subjects with a GERD condition that in the opinion of the PI justifies a minimally invasive reversible procedure prior to attempting anatomical change such as Nissen or Toupet fundoplication.
e) Subject has exhibited excessive lower esophageal acid exposure during 24-hour pH-metry of antisecretory therapy performed within 6 months of screening visit; pH < 4 for > 5% of total time.
f) Subject has a resting LES end expiratory pressure * 5mmHg on manometry performed within 6 months of enrollment.
g) Subject has no esophagitis or esophagitis * Grade C (LA classification) on upper endoscopy within 6 months of enrollment.
h) Subject*s body weight >15kg.
i) Subject*s BMI <30 kg/m2.
j) Subject*s parent or legal guardian (and subject from age 12) has signed the informed consent form and is able to adhere to study visit schedule.

Exclusion criteria

a) Subject has known non-GERD esophageal motility disorder that in the opinion of investigator precludes an anti-reflux procedure.
b) Subject has history of gastroparesis.
c) Subject has any history of significant multisystem diseases (e.g. kidney failure, liver

failure).
d) Subject has a known autoimmune or a connective tissue disorder (e.g. scleroderma, dematomyositis, Calcinosis-Raynaud*s-Esophagus Sclerodactyly Syndrome (CREST), Sjogren*s Syndrome, Sharp*s Syndrome) requiring therapy in the preceding 2 years.
e) Subject has Barrett*s epithelium (> M2; >C1) or any grade of dysplasia.
f) Subject has a hiatal hernia larger than 3 cm.
g) Subject has a body mass index (BMI) greater than 30 kg/m2.
h) Subject has Type 1 diabetes mellitus.
i) Subject has uncontrolled Type 2 diabetes mellitus (T2DM) defined as HbA1c >9.5 in the previous 6 months, or has T2DM for > 10 years.
j) Subject has a history of suspected or confirmed esophageal or gastric cancer.
k) Subject has esophageal or gastric varices.
l) Subject has significant cardiac arrhythmia or ectopy or significant cardiovascular disease.
m) Subject has an existing implanted electrical stimulator (e.g., pacemaker, AICD).
n) Subject requires chronic anticoagulant therapy.
o) Subject has dysphagia due to eosinophilic esophagitis, esophageal peptic stricture, excluding Schatzki*s ring.
p) Subject of child-bearing potential who is pregnant or intends to become pregnant during the trial period.
q) Subject is currently enrolled in other potentially confounding research.
r) History of any malignancy in the last 2 years.
s) History of previous surgery involving the LES, excluding Nissen and Toupet fundoplication.
t) Subject has any condition that, at the discretion of the investigator or sponsor, would preclude participation in the trial.

Study design

Design

Study phase:	2
Study type:	Interventional
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Will not start
Enrollment:	15
Type:	Anticipated

Medical products/devices used

Generic name:	EndoStim LES Stimulation System
Registration:	Yes - CE intended use

Ethics review

Not approved Date:	26-09-2016
Application type:	First submission
Review commission:	CCMO: Centrale Commissie Mensgebonden Onderzoek (Den Haag)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL56896.000.16