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**Search terms and notes: reflux
or heartburn
thickener* or “thickening agent”**

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Searched by:	Anna Chapman
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Tel:	01384 816893

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Disclaimer: It is recommended that you check the references for their relevance and that they are critically appraised before being applied to a clinical decision. Please be aware that published journal articles will have been peer reviewed, however, other evidence such as pre-prints, reports and other grey literature may not have been through this process.

A meta-analysis to evaluate the effect of feed thickeners and alginate-based products in infants with gastro-oesophageal reflux

Type Journal Article

Author Smith A.

Author Kotze H.

Author Fawkes N.

Author Coyle C.

Abstract Objectives and Study: Gastro-oesophageal reflux (GOR) is frequently reported in infants. Feed thickeners and alginate-based reflux suppressants are often used to manage regurgitation symptoms. However, no evidence exists that compares the effectiveness between these types of treatment. The objective was to evaluate the use of feed thickeners and alginate-based reflux suppressants in infants with GOR in terms of a reduction in the number of vomiting/regurgitation episodes from baseline. Method(s): Embase and MEDLINE were used to identify randomised controlled trials in infants with GOR which examined the treatment effects of thickening agents or alginate-based treatments. Two review authors independently identified eligible studies from the literature search. Differences in opinion were resolved by discussion and the evaluation included a re-analysis of the primary endpoint from one study (Miller et al) to confirm the effect size (ES) of vomiting/regurgitation episodes relative to placebo. Standardised ES were derived from the eligible studies and a random effects model metaanalysis was applied to calculate an overall ES in the reduction of vomiting/regurgitation episodes. Result(s): Eight studies were identified for full data extraction recruiting a total of 688 infants with an age range of 5 weeks to 6 months. The studies were of variable methodological quality and included the following thickening agents: thickened formula, rice cereal and bean gum (7 studies) and an alginate base agent (1 study). The infants included in the review were mainly formula-fed term infants. The analysis shows that treated infants (all treatments) had approximately 3 fewer episodes of regurgitation per day (weighted mean difference -3.22 episodes/day, 95% confidence interval (C.I) 4.87 to -1.57). Infants who received either regular formula or placebo (controls) had a mean reduction of -0.57 episodes/day (95% C.I. 3.87 to -5.01). For infants treated with thickeners the figure was -2.90 episodes/day (95% C.I. -1.35 to -4.45). The re-analysis of the Miller et al. study confirmed that infants treated with alginate treatment had nearly 6 fewer episodes of regurgitation per day (mean difference - 5.5, -3.72 to -7.28) and a ratio of regurgitation episodes vs placebo of 0.61 (95% C.I. 0.43, 0.88). Accounting for values observed in the placebo treatment in this study, alginate treatment accounts for a clinically relevant reduction of -3.5 episodes/day. No major side effects were reported with the use of feed thickeners or alginates. Conclusion(s): We have found evidence to support that alginate-based products should be considered as an effective treatment for infants who are suffering from GOR and are comparable to the use of feed thickeners. The reduction of approximately three episodes of regurgitation per day is likely to be of clinical significance to caregivers, which is in line with previously reported literature for food thickeners. (Kwok et al., 2017, Vandenplas et al., 2013). Due to the limited information available, we could not conclude which treatment type is superior.

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Journal Abbr J. Pediatr. Gastroenterol. Nutr.

ISSN 1536-4801

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Attachments

Full Text (HTML)

Author Daniel R. Duncan

Author Kara Larson

Author Rachel L. Rosen

Abstract Purpose of Review The purpose of this review is to discuss current knowledge and recent findings regarding clinical aspects of thickeners for pediatric gastroesophageal reflux and oropharyngeal dysphagia. We review evidence for thickener efficacy, discuss types of thickeners, practical considerations when using various thickeners, and risks and benefits of thickener use in pediatrics. Recent Findings Thickeners are effective in decreasing regurgitation and improving swallowing mechanics and can often be used empirically for treatment of infants and young children. Adverse effects have been reported, but with careful consideration of appropriate thickener types, desired thickening consistency, and follow-up in collaboration with feeding specialists, most patients have symptomatic improvements. Summary Thickeners are typically well tolerated and with few side effects but close follow-up is needed to make sure patients tolerate thickeners and have adequate symptom improvement.

Date 2019-5-16

Library Catalogue PubMed Central

URL <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9733977/>

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Extra PMID: 31098722 PMCID: PMC9733977

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DOI 10.1007/s11894-019-0697-2

Issue 7

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ISSN 1522-8037

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Attachments

Accepted Version

PubMed Central Link

Clinical inquiries. What is the best treatment for gastroesophageal reflux and vomiting in infants?

Type Journal Article

Author Vanessa McPherson

Author Sarah Towner Wright

Author Alfreda D. Bell

Abstract The literature on pediatric reflux can be divided into studies addressing clinically apparent reflux (vomiting or regurgitation) and reflux as measured by pH probe or other methods. Sodium alginate reduces vomiting and improves parents' assessment of symptoms (strength of recommendation [SOR]: B, small randomized controlled trial [RCT]). Formula thickened with rice cereal decreases the number of postprandial emesis episodes in infants with gastroesophageal reflux disease (GERD) (SOR: B, small RCT). There are conflicting data on the effect of carob bean gum as a formula thickener and its effect on regurgitation frequency (SOR: B, small RCTs). Metoclopramide does not affect vomiting or regurgitation, but is associated with greater weight gain in infants over 3 months with reflux (SOR: B, low-quality RCTs). Carob bean gum used as a formula thickener decreases reflux as measured by intraluminal impedance but not as measured by pH probe (SOR: B, RCT). Omeprazole and metoclopramide each improve the reflux index as measured by esophageal pH probe (SOR: B, RCT). Evidence is conflicting for other commonly used conservative measures (such as positional changes) or other medications for symptomatic relief of infant GERD. There is very limited evidence or expert opinion regarding breastfed infants, particularly with regard to preservation of breastfeeding during therapy.

Date 2005-04

Library Catalogue PubMed

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Journal Abbr J Fam Pract
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PubMed entry

Cornstarch thickened formula reduces oesophageal acid exposure time in infants

Type Journal Article
Author I. Xinias
Author N. Mouane
Author B. Le Luyer
Author K. Spiroglou
Author V. Demertzidou
Author B. Hauser
Author Y. Vandenplas
Date 2005-01-01
Library Catalogue www.dldjournalonline.com
URL [https://www.dldjournalonline.com/article/S1590-8658\(04\)00400-1/fulltext](https://www.dldjournalonline.com/article/S1590-8658(04)00400-1/fulltext)
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Issue 1
Journal Abbr Digestive and Liver Disease
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Current methods of thickening feeds for preterm infants with gastroesophageal reflux disease is highly variable

Type Journal Article
Author Koo J.K.
Author Bode L.
Author Kim J.H.

Abstract Background Gastroesophageal reflux disease (GERD) is a common problem in neonates, especially in preterm infants. The mainstay therapy for GERD begins with repositioning, adjustment of feeding rate, followed by thickening of feeds, then with pharmacologic intervention, and finally surgery. A large metaanalysis of randomized controlled trials demonstrated effective reduction of GERD symptoms in infants fed thickened feeds. Infants who received thickened feeds also demonstrated better weight gain. Objective To measure the viscosity effect of different thickening strategies for preterm infants with GERD Methods We thickened donor human milk (DHM) and formula using various thickeners: starch based thickeners (SBT) (Thick It™), xanthan gum based thickeners (GBT) (Simply Thick™, Thicken Up Clear™), carob GBT (GelMix™) or rice cereal. We also assessed formula with added starches that are marketed for reflux, including Simlac Spit Up™ and Enfamil ARTM. The viscosity of each sample was measured at 0, 15, 30 and 60 minutes after the addition of thickeners. Each sample of milk or formula was thickened per manufacturer recommendations for each of the products, with a goal of achieving nectar-thick consistency. The acidity (pH) of each sample was measured and in separate trials, 3M HCl and 0.1M HCl was added to the milk and thickener mixtures to mimic the range of acidity in the stomach. Two temperatures, room temperature and 37degreeC, were evaluated, DHM was tested with and without human milk fortifiers (HMF). Acidity was also controlled to mimic the range of gastric pH. Viscosity of the milk was measured using a rotary viscometer (NDJ-1, NDJ, China) that had the ability to measure viscosity between 10 to 100,000 mPa*s +/- 5% error. Results Formula can be effectively thickened with all types of thickeners, and the viscosities of thickened formula quickly achieve a nectar-thick consistency and subsequently continue to thicken over time. On the other hand, DHM does not effectively thicken with SBT. DHM went back to baseline viscosity (thin liquid) within 15 minutes of adding SBT. Both DHM and formula, when thickened with rice cereal, formed a non-homogenous mixture that rendered viscosity readings imprecise given the vast range of viscosities within the same fluid sample. Acid ablated the effects of xanthan GBT while carob GBT retained some thickening potential. An acid pH effectively thickened anti-regurgitation formulas. Conclusions Current thickening strategies of preterm infant feeding produces highly variable results in final feed viscosity. Objective measures of liquid viscosity are recommended for adequate comparisons of thickening efficacy and changes to thickening regimen. Careful consideration of acidity and time need to be observed. Human milk continues to be the most challenging feed type to thicken in a controlled manner.

Date 2016

URL http://www.fasebj.org/content/30/1_Supplement/151.5.abstract?sid=223dbfb0-3c81-4c72-bd1debfa5f7b6742

Extra Publisher: FASEB

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Issue Meeting Abstracts

Journal Abbr FASEB J.

ISSN 1530-6860

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Full Text (HTML)

Effect of cereal-thickened formula and upright positioning on regurgitation, gastric emptying, and weight gain in infants with regurgitation

Type Journal Article

Author Hsun-Chin Chao

Author Yvan Vandenplas

Abstract OBJECTIVE: We compared the effect of cereal-thickened formula or postural therapy on regurgitation and gastroesophageal reflux, weight gain, and gastric emptying in infants. METHODS: We performed a prospective trial in exclusively formula-fed infants 2 to 6 mo of age presenting with regurgitation or vomiting at least three times a day. Infants were randomized into two groups; group A received cereal-thickened formula versus group B who were placed in a postprandial upright position for 90 min and evaluated over an 8-wk period. A 90-min technetium 99m milk scintigraphy was performed before and at the end of the intervention period. RESULTS: Thirty-one infants were included in group A and 32 in group B; at inclusion, there were no anthropometric differences between groups ($P = 0.813-0.955$). After 4 and 8 wk, the difference in regurgitation frequency per day between groups A and B had become significant (at 4 wk, 2.39 ± 0.86 for group A versus 2.84 ± 0.81 for group B, $P = 0.039$; at 8 wk, 1.61 ± 0.76 for group A versus 2.38 ± 0.83 for group B, $P < 0.001$). The volume ingested per meal was not different between groups after 4 wk, although this parameter showed a larger intake in group A after 8 wk (156.8 ± 23.5 mL for group A versus 143.4 ± 25.1 mL for group B, $P = 0.035$), resulting in a significant difference in mean caloric intake. Gastric emptying after 8 wk showed no significant difference between groups A and B. Group A infants had significantly greater weight gain than did group B infants after 4 wk (636.2 ± 103.4 g for group A versus 577.4 ± 102.7 g for group B, $P = 0.03$) and 8 wk (1261.3 ± 131.4 g for group A versus 1121.4 ± 137.2 g for group B, $P < 0.001$). After 8 wk of intervention, the increase in length was significantly greater in group A than in group B (5.2 ± 0.6 cm for group A versus 4.7 ± 0.6 cm for group B, $P = 0.032$). CONCLUSION: Cereal-thickened formula is significantly more efficacious than postural therapy in decreasing the frequency of regurgitation in regurgitating infants. Treatment of regurgitation with cereal-thickened formula results in an increased caloric intake (approximately 25%), related to increased gain in weight and length, in comparison with regular formula and positioning therapy.

Date 2007-01

Library Catalogue PubMed

Extra PMID: 17189087

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DOI 10.1016/j.nut.2006.10.003

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Journal Abbr Nutrition

ISSN 0899-9007

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PubMed entry

Effect of formula thickened with reduced concentration of locust bean gum on gastroesophageal reflux

Type Journal Article

Author R. Miyazawa

Author T. Tomomasa

Author H. Kaneko

Author H. Arakawa

Author A. Morikawa

Abstract AIM: Previous studies showed that HL-350, a formula thickened with a reduced concentration of locust bean gum, decreased frequent regurgitation in 4-month old infants with reflux. In this study, we investigated the effect of HL-350 in younger infants. METHODS: We studied 20 infants less than 2 months old who had three or more episodes of regurgitation or vomiting per day. Ten infants (group A) were fed with HL-350 for the first week, and with control milk, HL-00, for the following week. The other 10 infants (group B) were fed in reverse order. Mothers recorded number of regurgitation episodes, feeding volume and time and number of bowel movements. To evaluate gastric emptying we measured antral cross sectional areas ultrasonographically at various time points after feeding. RESULTS: The median number of regurgitation episodes decreased significantly with feeding of HL-350 (2.3/day) compared to feeding with control milk (5.2/day) ($p = 0.00048$). No significant difference was evident in feeding volume and time, body weight gain, or gastric emptying rate between HL-350 and control milk. CONCLUSION: HL-350 decreased the number of regurgitation episodes without affecting gastric emptying delay in very young infants with recurrent vomiting.

Date 2007-06

Library Catalogue PubMed

Extra PMID: 17537023

Volume 96

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Publication Acta Paediatrica (Oslo, Norway: 1992)

DOI 10.1111/j.1651-2227.2007.00279.x

Issue 6

Journal Abbr Acta Paediatr

ISSN 0803-5253

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PubMed entry

Effect of locust bean gum in anti-regurgitant milk on the regurgitation in uncomplicated gastroesophageal reflux

Type Journal Article

Author Reiko Miyazawa

Author Takeshi Tomomasa

Author Hiroaki Kaneko

Author Akihiro Morikawa

Abstract OBJECTIVES: To evaluate the efficacy of anti-regurgitant milk (AR milk) with reduced concentration of locust bean gum (LBG) compared with the usual commercially available concentration of this thickener.

METHODS: Thirty infants with daily regurgitation but no other medical problems were randomly assigned to one of two groups. Infants in group A ($n = 16$) were fed either HL-450, an AR milk thickened with a commonly used concentration of LBG (0.45 g/100 mL) or control milk (HL-00; no LBG) in a crossover manner for periods of 1 week. The order of milk was randomly chosen for each subject. Infants in group B ($n = 14$) were fed HL-350, an AR milk with a reduced LBG concentration (0.35 g/100 mL), or HL-00 in the same crossover fashion. The number of episodes of regurgitation, feeding time, and body weight gain were recorded. Three infants in group B did not complete the protocol and were excluded.

RESULTS: Both AR formulas decreased the number of regurgitation episodes by approximately 50% compared with control. Five mothers who gave their infants HL-450 and no mothers who fed their children HL-350 reported that the infants had difficulty sucking the formula through the nipple. Thirteen (81.3%) mothers who used HL-450 and 9 (81.8%) mothers who used HL-350 preferred the AR milk to the control milk. CONCLUSIONS: An AR milk with reduced LBG was as effective in reducing regurgitation as one with the usually available concentration of LBG.

Date 2004-05

Library Catalogue PubMed

Extra PMID: 15097434

Volume 38

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Publication Journal of Pediatric Gastroenterology and Nutrition
DOI 10.1097/00005176-200405000-00004
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Attachments

PubMed entry

Effects of pectin liquid on gastroesophageal reflux disease in children with cerebral palsy

Type Journal Article

Author Reiko Miyazawa

Author Takeshi Tomomasa

Author Hiroaki Kaneko

Author Hirokazu Arakawa

Author Nobuzo Shimizu

Author Akihiro Morikawa

Abstract Background: The use of thickeners is a standard therapy for decreasing episodes of regurgitation or vomiting in infants. However, it remains to be investigated whether thickener is effective for vomiting and/or chronic respiratory symptoms in children with cerebral palsy. Methods: We enrolled 18 neurologically impaired children caused by cerebral palsy, with gastroesophageal reflux disease. In the first part of this study (pH monitoring), subjects were randomly allocated to two groups: fed with a high-pectin diet [enteral formula: pectin liquid = 2:1 (v/v)], or a lowpectin diet [enteral formula: pectin liquid = 3:1 (v/v)]. Two-channel esophageal pH monitoring was performed over 48 h. In the second part (clinical trial), subjects were fed a high- or low-pectin diet and non-pectin diet for 4 weeks in a crossover manner. Nurses recorded the feeding volume, number of episodes of vomiting, volume of gastric residue, episodes of cough and wheeze, frequency of using oxygen for dyspnea, and the day when the child could return to school. Cough and wheeze were recorded as a cough-score. Results: The median value for the % time pH < 4 at the lower and upper esophagus was significantly decreased with a high-pectin diet [9.2% (6.2–22.6) vs. 5.0% (3.1–13.1); P < 0.01, 3.8% (2.9–11.2) vs. 1.6% (0.9–8.9); P < 0.01 (interquartile range), non-pectin and high-pectin, respectively]. The number of reflux episodes per day and duration of longest reflux were decreased significantly with a high-pectin, but not with a low-pectin diet. The median number of episodes of vomiting decreased significantly with a highpectin diet [2.5/week (1.0–5.0) vs. 1.0 (1.0–1.5), P < 0.05]. The median cough-score was significantly decreased by both concentrations of pectin [8.5/week (1.0–11.5) vs. 2.0/week (0.0–3.0), fed with a highpectin diet; 7.0/week (1.0–14.5) vs. 1.0/w (0.0–5.0), fed with a low-pectin diet, P < 0.05]. Conclusion: Pectin liquid partially decreased gastroesophageal reflux as measured by esophageal pH monitoring, and might improve vomiting and respiratory symptoms in children with cerebral palsy.

Trial registration: ISRCTN19787793

Date 12/2008

Library Catalogue DOI.org (Crossref)

URL <https://bmcgastroenterol.biomedcentral.com/articles/10.1186/1471-230X-8-11>

Accessed 09/02/2023, 09:19:54

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Journal Abbr BMC Gastroenterol

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Miyazawa et al. - 2008 - Effects of pectin liquid on gastroesophageal reflu.pdf

FEED THICKENER FOR INFANTS UP TO 6 MONTHS OF AGE WITH GASTROESOPHAGEAL REFLUX (REVIEW)

Type Journal Article

Author Pang-Hamtak A.

Author Peterson B.

Date 2021

Extra Place: United States Publisher: NLM (Medline)

Volume 44

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Publication Gastroenterology nursing : the official journal of the Society of Gastroenterology Nurses and Associates

DOI 10.1097/SGA.0000000000000606

Issue 3

Journal Abbr Gastroenterol Nurs

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Full Text (HTML)

Feed thickener for infants up to six months of age with gastro-oesophageal reflux

Type Journal Article

Author T'ng Chang Kwok

Author Shalini Ojha

Author Jon Dorling

Abstract Feed thickener for infants up to six months of age with gastro-oesophageal reflux , Review question , We reviewed the evidence for the effect of feed thickener on gastro-oesophageal reflux (GOR) in babies up to six months of age., Background , Gastro-oesophageal reflux is a common condition in babies. It occurs when the stomach contents (milk feeds and acid) come back up into the gullet or mouth. While this normally improves as babies grow older, it can sometimes become troublesome and treatment may be needed. Thickening the milk feeds is a simple method that is commonly used to treat GOR. However, it is unclear if using feed thickeners improves GOR., Study characteristics , We examined the research published up to 22 November 2016. We found 8 clinical trials recruiting 637 babies up to 6 months of age who presented with symptoms of GOR. The recruited babies were mainly 'healthy' term babies (i.e. babies born within three weeks of the due date) who were bottle feeding. Three of the studies were funded by a pharmaceutical company, hence the quality of the evidence presented must be interpreted with caution., Key results , We found that term babies with GOR given feed thickeners had nearly two fewer reflux episodes per day. Babies with GOR were also 2.5 times more likely to have no reflux symptoms if feed thickeners were used. No studies reported information on failure to thrive (i.e. poor growth). We found that babies with GOR given feed thickeners showed an improvement in an important measure of acid reflux obtained from pH study. Reflux index (i.e. percentage of time of acidic reflux of pH < 4) was 5% lower in babies given feed thickeners. No major harms were reported in the eight studies., Quality of evidence , Due to study design limitations, we are moderately confident in the evidence for the reduction of two reflux episodes per day. Hence, feed thickeners can be useful in term babies who are bottle feeding and have troublesome GOR., We rated the quality of the evidence for the other outcomes as low due to the small number of studies with small numbers of babies recruited. Further research is needed to determine which type of feed thickener is better and whether feed thickeners are useful in babies with GOR who are breastfeeding or preterm.

Date 2017-12-5

Library Catalogue PubMed Central

URL <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6485971/>

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Extra PMID: 29207214 PMCID: PMC6485971

Volume 2017

Pages CD003211

Publication The Cochrane Database of Systematic Reviews

DOI 10.1002/14651858.CD003211.pub2

Issue 12

Journal Abbr Cochrane Database Syst Rev

ISSN 1469-493X

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PubMed Central Full Text PDF

PubMed Central Link

Feed thickeners in gastro-oesophageal reflux in infants

Type Journal Article

Author Kwok T.C.

Author Ojha S.

Author Dorling J.

Date 2018

URL <http://bmjpaedsopen.bmj.com/>

Extra Place: United Kingdom Publisher: BMJ Publishing Group

Volume 2

Pages e000262

Publication BMJ Paediatrics Open

DOI 10.1136/bmjpo-2018-000262

Issue 1

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Attachments

Full Text (HTML)

Gastroesophageal Reflux Disease in Intellectually Disabled Individuals: How Often, How Serious, How Manageable?

Type Journal Article

Author C. J. M. Böhmer

Author E. C. Klinkenberg-Knol

Author M. C. Niezen-de Boer

Author S. G. M. Meuwissen

Abstract Gastroesophageal reflux disease (GERD) is an important and frequently occurring problem among intellectually disabled individuals (IDI). Early suspicion and recognition of the presence of GERD in IDI is the cornerstone of adequate management of these patients. The prevalence of GERD among institutionalized IDI with an IQ < 50 is about 50%, with 70% of these reflux patients having endoscopically established reflux esophagitis. In case of symptoms as hematemesis, rumination, or dental erosions, there is an increased risk for GERD. GERD has also been shown to be associated with cerebral palsy, an IQ < 35, scoliosis, and the use of anticonvulsant drugs or benzodiazepines. To establish the diagnosis, 24-h pH measurement or endoscopy should be used in all those intellectually disabled individuals in whom GERD clinically is suspected. The efficacy of proton-pump inhibitors (PPIs) in IDI with GERD is indisputable. In IDI, adults as well as children, PPIs are highly effective, independent of the severity of esophagitis. Marked improvement of symptoms and quality of life can be noticed after medical treatment, thereby decreasing the need for surgery in this complicated group of patients.

Date August 2000

Short Title Gastroesophageal Reflux Disease in Intellectually Disabled Individuals

Library Catalogue journals.lww.com

URL https://journals.lww.com/ajg/Abstract/2000/08000/Gastroesophageal_Reflux_Disease_in_Intellectually.5.aspx

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Snapshot

Natural evolution of infantile regurgitation versus the efficacy of thickened formula

Type Journal Article

Author Hegar B.

Author Rantos R.

Author Firmansyah A.

Author De Schepper J.

Author Vandenplas Y.

Abstract Background: Regurgitation is frequent in infants. We evaluated changes in regurgitation among patient groups fed standard formula, standard formula subsequently thickened with cereal, or formula manufactured with bean gum as a thickening agent. Patients and Methods: A prospective, blinded, randomised 1-month intervention trial evaluating the efficacy of parental reassurance of the regurgitating child in combination with 3 formula interventions-standard infant formula (group A); 5 g of rice cereal added to 100mL standard formula (group B); and formula manufactured with bean gum as a thickening agent (group C)-was performed in 60 infants presenting with more than 4 episodes of regurgitation and/or vomiting per day during the week before inclusion. Formula intake, infant comfort, stool aspects, and weight gain were evaluated. All of the infants and data recorded by parents in a diary were evaluated weekly by a blinded health care professional. Result(s): At baseline, groups A, B, and C were similar for all of the parameters. After the 1-month intervention, regurgitation/ vomiting decreased significantly in all 3 groups ($P < 0.0005$). Although the decrease was largest in group C (-4.2 ± 2.1 episodes/day), the incidence did not differ significantly with groups A or B. At no evaluation interval was there a difference in volume of formula intake, infant comfort, stool frequency, or aspect. After 1 month, weight gain was significantly greater in group C compared with group A (19.9% vs 16.4%; $P < 0.001$). Conclusion(s): Thickening of formula decreases regurgitation, but not significantly. Parental reassurance remains the cornerstone of the treatment of infant regurgitation. © 2008 by European Society for Pediatric Gastroenterology, Hepatology, and Nutrition and North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition.

Date 2008

Extra Place: United States Publisher: Lippincott Williams and Wilkins (530 Walnut Street, P O Box 327, Philadelphia PA 19106-3621, United States)

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Publication Journal of Pediatric Gastroenterology and Nutrition

DOI 10.1097/MPG.0b013e31815eeae9

Issue 1

Journal Abbr J. Pediatr. Gastroenterol. Nutr.

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Review: thickened feeds or metoclopramide may reduce symptoms of gastro-oesophageal reflux in healthy infants

Type Journal Article

Author C. J Ravazzolo

Date 2005-07-01

Short Title Review

Library Catalogue DOI.org (Crossref)

URL <https://ebn.bmj.com/lookup/doi/10.1136/ebn.8.3.74>

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Volume 8

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Attachments

Ravazzolo - 2005 - Review thickened feeds or metoclopramide may redu.pdf

The effect of thickened-feed interventions on gastroesophageal reflux in infants: Systematic review and meta-analysis of randomized, controlled trials

Type Journal Article

Author Horvath A.

Author Dziechciarz P.

Author Szajewska H.

Abstract CONTEXT. Currently, thickened feeds are increasingly being used to treat infants with gastroesophageal reflux, driven in large part by the baby food industry. Previous meta-analyses have shown that although thickened formulas do not seem to reduce measurable reflux, they may reduce vomiting. However, because data are limited, there is still uncertainty regarding the use of thickening agents. OBJECTIVE. Our goal was to systematically evaluate and update data from randomized, controlled trials on the efficacy and safety of thickened feeds for the treatment of gastroesophageal reflux in healthy infants. METHODS. The Cochrane Library, Medline, Embase, and CINAHL databases and proceedings of the European and North American pediatric gastroenterology conferences (from 2000) were searched in May 2008; additional references were obtained from reviewed articles. Only randomized, controlled trials that evaluated thickened feeds used in infants for at least several days for the treatment of gastroesophageal reflux were considered for inclusion. Three reviewers independently performed data extraction by using standard data-extraction forms. Discrepancies between reviewers were resolved by discussion between all authors. Only the consensus data were entered. RESULTS. Fourteen randomized, controlled trials with a parallel or crossover design, some with methodologic limitations, were included. Use of thickened formulas compared with standard formula significantly increased the percentage of infants with no regurgitation, slightly reduced the number of episodes of regurgitation and vomiting per day (assessed jointly or separately), and increased weight gain per day; it had no effect on the reflux index, number of acid gastroesophageal reflux episodes per hour, or number of reflux episodes lasting >5 minutes but significantly reduced the duration of the longest reflux episode of pH < 4. No definitive data showed that one particular thickening agent is more effective than another. No serious adverse effects were noted. CONCLUSIONS. This meta-analysis shows that thickened food is only moderately effective in treating gastroesophageal reflux in healthy infants. Copyright © 2008 by the American Academy of Pediatrics.

Date 2008

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Full Text (HTML)

Thickened fluids: Investigation of users' experiences and perceptions

Type Journal Article

Author Christina H. Smith

Author Emma M. Jebson

Author Ben Hanson

Abstract Background & aims Fluid thickeners are an important and commonly-used strategy to manage swallowing difficulties however there are no reports of the perceptions and experiences of parents of children using thickeners. Methods Semi-structured interviews of 14 parents having a child using fluid thickeners due to swallowing difficulties. Results Parents reported improvements in quality of life and health through the use of thickeners. They also reported persistent difficulties in the use of thickeners. Conclusions Results showed unanimous goodwill and positive attitudes towards thickeners and their observed benefits, tempered by common difficulties with thickeners (variability and unpredictability). There remains scope for improvements of commercial thickeners and in information conveyed to users.

Date 2014-02-01

Short Title Thickened fluids

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ScienceDirect Snapshot

Thickened infant formula: What to know

Type Journal Article

Author Silvia Salvatore

Author Francesco Savino

Author Maartje Singendonk

Author Merit Tabbers

Author Marc A. Benninga

Author Annamaria Staiano

Author Yvan Vandenplas

Abstract **OBJECTIVES:** This study aimed to provide an overview of the characteristics of thickened formulas to aid health care providers manage infants with regurgitations. **METHODS:** The indications, properties, and efficacy of different thickening agents and thickened formulas on regurgitation and gastroesophageal reflux in infants were reviewed. PubMed and the Cochrane database were searched up to December 2016. **RESULTS:** Based on the literature review, thickened formulas reduce regurgitation, may improve reflux-associated symptoms, and increase weight gain. However, clinical efficacy is related to the characteristics of the formula and of the infant. Commercial thickened formulas are preferred over the supplementation of standard formulas with thickener because of the better viscosity, digestibility, and nutritional balance. Rice and corn starch, carob bean gum, and soy bean polysaccharides are available as thickening agents. Hydrolyzed formulas have recently shown promising additional benefit. **CONCLUSIONS:** Thickened formulas reduce the frequency and severity of regurgitation and are indicated in formula-fed infants with persisting symptoms despite reassurance and appropriate feeding volume intake.

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Short Title Thickened infant formula

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PubMed entry

Use of a new thickened formula for treatment of symptomatic gastroesophageal reflux in infants

Type Journal Article

Author O. Borrelli

Author G. Salvia

Author A. Campanozzi

Author M. T. Franco

Author F. L. Moreira

Author M. Emiliano

Author F. Campanozzi

Author S. Cucchiara

Abstract BACKGROUND: Paediatricians are familiar with infants complaining of regurgitation and emesis from gastroesophageal reflux. These subjects, usually growing satisfactorily and healthy, are affected by "functional" or "symptomatic" gastroesophageal reflux and are treated with posture changes and thickened feedings. AIM: To evaluate in infants with symptomatic gastroesophageal reflux the effect of a new formula (Nutrilon AR), containing carob flour/locus bean gum as a thickening agent; both clinical features and oesophageal acid exposure were evaluated. PATIENTS: Twenty-four infants (age range: 5-11 months; median age: 8 months; 8 females) presented at our Unit with a history of chronic postprandial regurgitation. METHODS: During a 24-hour intraoesophageal pH test a traditional formula thickened with rice flour at a concentration of 5% was alternated with the formula Nutrilon AR; thereafter infants were randomly allocated to receive, for two weeks, either a traditional thickened formula or the new formula, in addition to posture changes. RESULTS: Intraoesophageal acid exposure was significantly lower in the periods following the new formula than after traditional formula; at the end of the treatment period patients receiving the new formula had a more significant decrease of both symptomatic score and number of episodes of emesis than patients on traditional formula. CONCLUSIONS: The new available formula, with the characteristics of a thickened meal, is better than a formula, traditionally thickened with added rice flour, in the conservative treatment of infants with symptomatic gastroesophageal reflux.

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