

Dietary management
and proper treatment
methods in averting
development of
gastro...



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Abstract

Background: Gastroesophageal reflux (GER) takes place when stomach contents disrupt the condition of everyday life. Among other pathologic impediments, sleeping or feeding issues, failure to thrive, and continual respiratory disorders are apparent as well. ⁶ Dietary management and proper treatment have been interconnected with the prevention of GER disease from negatively impacting an infant's overall well-being.

Objective: The main purpose of this research review is to determine if proper dietary management and treatment methods can assist in reducing the development of GER disease in infants today.

Methods: This research paper emphasized on reviewing five primary journal articles from 2015-2018. These articles were selected from PubMed and ScienceDirect. The studies included in these research articles mainly examined the association between dietary management, proper treatment methods, and the prevalence of GER disease in infants.

Results:

Conclusions: The general research signifies that proper diets and effective treatment methods of infants may help contribute to the development of GER disease today.

Introduction

Gastroesophageal reflux (GER) takes place when stomach contents disrupt the condition of everyday life. Among other pathologic impediments, sleeping or feeding issues, failure to thrive, and continual respiratory disorders are apparent as well. ⁶ This can make a huge impact in the emergence of GER in infants today. However, dietary management and proper treatment are vital ways to avert GER disease from negatively impacting an infant's overall well-being. In fact, physically fit infants may regurgitate on a regular basis. This can be identified as a physiologic attribute, and is common with the prevalence being highest in the first 3-4 months of life. It is essential to make sure that infants are getting proper nutrition and daily exercise as they continue to grow. These factors will help avert the emergence of GER disease as indicated by several statistics from research articles.

Funderburk et al. mentioned that the prevalence of GER disease in infants ranges between 1.8% and 8.2%, and is more common during the first year of life. ⁴ Extra-esophageal exemplifications, such as wheezing or pneumonia, may be present in some infants with GER who inhale gastric contents into the lungs. ⁴ Although the pH probe study has historically been the criterion standard test to diagnose GER disease in infants and children, it does not provide information about non acidic reflux, which can be more common in preterm infants. ⁴ That is why further studies are still needed to establish whether changes in diet along with proper treatment methods can help avert the development of GER disease in infants.

Recent research studies have found a link between dietary management, treatment methods, and GER disease in infants. That is why it is necessary to further discover innovative ways to implement dietary management, along with treatment methods into the nutritional field. This will be an essential way health care professionals can guide parents to help their infants develop healthy eating, and lifestyle habits. Most importantly, this will assist in reducing the development of GER disease in infants today. The main research question addressed throughout this literary review is the following:

Does dietary management and proper treatment from the initial days of birth assist in averting the development of GER disease in infants?

Literature Review

Significance of Sleep in Neonates with GER

According to a current study, 25 healthy neonates showed that reflux episodes were higher when the infant was awake and that bolus migration was higher in active sleep but symptoms associations and characteristics of non-acid GER were not studied.³ Contrary to the findings from other research articles, Qureshi et al. indicated that small number of studies show a correlation between respiratory symptoms and GER disease in infants.³ In fact, the study conducted by Qureshi et al. discovered that mechanisms of symptom generation and adaptation are dissimilar in sleep and wake states underscoring the differential ability of infants to perceive esophageal sensitivity during sleep.³

Methods

This research paper emphasized on reviewing five primary journal articles from 2015-2018. After performing some thorough search criteria, these articles were selected from PubMed and ScienceDirect. The studies included in these research articles mainly examined the link between dietary management, proper treatment methods, and the emergence of GER disease in infants. Moreover, studies that omitted infants and neonates were not part of this comprehensive review.

Table 1: Various Components of Literature Review

Author, Study Design, (Year)	Purpose	Study Populati on	Methods/ Interventions
Yan SQ et al. ¹ Retrospect ive Cohort Study (2015)	<ul style="list-style-type: none"> Examine prevention methods and its effects of massage on gastric volvulus (GV) in infants with GER. 	(N= 180) GER induced pneumonia inpatient s	Iodine containing contrast uses to perform radiography of upper GI tract. Assessed 24 hour pH monitoring of the distal

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esophagus

After

procedures

were

performed,

clinical effects

estimated

Djeddi et

al. ²

Retrospect

ive Cohort

Study

(2018)

- Determine the relationship between GER related changes in sleep-wakefulness in neonates, and perinatal smoking exposures.

(N= 31) neonate s with potential GER

Urine

cotinine assay

used to

estimate

tobacco smoke

exposure

Mann-

Whitney *U*

tests were

performed

among

different

experimental

groups

Monitored

multichannel

impedance-pH

🎬 Performed 8

to 12 hr

intervals of

polysomnogra

phy

🎬 Assessed

bolus

retrograde

migration

during GER

impedance

- Identify

chemical

🎬 pH

impedance

Qureshi et

and spatio-

and

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temporal

🎬 (N=

polysomnogra

Retrospect

attributes in

18)

phy performed

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relation to

neonate

🎬 GER events

Study

impedance

s

reflecting

(2015)

positive GER in

positive

sleep and wake

impedance






states in

were

symptomatic

distinguished

neonates.

			between sleep and wake states using symptom probability, index, and sensitivity index
			 MII-pH probe used to evaluate infants' symptoms with reflux events
Funderburk et al. 4	<ul style="list-style-type: none"> Examine the observed reflux-like behaviors to reflux events on MII-pH studies. 	 (N= 41) inpatient s and (N= 17) outpatient s	 Symptom probability, index, and sensitivity index utilized
Retrospective Cohort Study (2016)			
Abdallah et al. 5	<ul style="list-style-type: none"> Determine bronchoalveolar lavage (BAL) 	 (N= 52) infants	 Evaluate indications of GER
Prospective			

		Monitored
e Cohort	pepsin assay	who may pH and
Study	among wheezy	have intraluminal
(2016)	infants with	GER esophageal
	GER disease.	impedance

Results

Table 2: Results from Research Studies

Authors	Results
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Yan SQ et al. ¹	<ul style="list-style-type: none"> • Massage treatment groups showed a significantly higher percentage of cure and total effect ($P < 0.05$, $P < 0.01$).¹ • There was a lower prevalence of recurrence (but with no statistical difference, $P > 0.05$) than basic treatment groups.¹ • Massage treatment groups had lower scores for symptoms and signs ($P < 0.05$, $P < 0.01$), especially for choking on milk, than basic treatment groups.¹ • There was significant attenuation of chest inflammation ($P < 0.05$, $P < 0.01$), GV ($P < 0.05$, $P < 0.01$) and GER ($P < 0.$
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05, $P < 0.01$) in massage treatment groups compared with those in basic treatment groups. ¹

- Massage treatment groups demonstrated a lower prevalence of severe pneumonia than basic treatment groups ($P < 0.05$).

¹

Djeddi et al. ²

- According to the urine cotinine assay, 21 of the 31 neonates had been exposed to cigarette smoke during the perinatal period. ²
- The number (and frequency) of GER-imp was significantly greater ($P = .016$) in the exposed group (29 [0-90]) than in the non-exposed group (12 [2-35]). ²
- Migration of the esophageal bolus from the distal segment to the most proximal segment was significantly more frequent ($P = .016$) in the exposed group (83% of GER) than in the non-exposed group (41%). ²
- The GER pattern associated with smoking exposure was particularly obvious during

rapid eye movement sleep. ²

- There were 317 GER events analyzed during 116 hours of polysomnography. ³
- During wake vs. sleep respectively, the median (interquartile range) frequency of impedance-positive GER was 4.9(3.1-5.8) vs. 1.4(0.7-1.7) events/hour (P < 0.001). ³

Qureshi et al. ³

- Proximal migration was 2.6(0.8-3.3) vs. 0.2(0.0-0.9) events/hour (P < 0.001). ³
- Symptom Index for cardiorespiratory symptoms for impedance-positive events was 22.5 (0-55.3) vs. 6.1(0-13), P= 0.04 while Symptom Sensitivity Index was 9.1(0-23.1) vs. 18.4 (0-50), P= 0.04 though Symptom Association Probability was similar, (P= 0.68). ³

Funderburk et al. ⁴

- Of 58 infants (40 preterm, 18 term) included in the study, only 6 infants (10%) had an abnormal MII-pH study. ⁴
- Irritability (32 infants), bradycardia (20), and desaturation (18) were the common

signs and symptoms. ⁴

- A total of 2142 (755 acidic and 1386 nonacidic) reflux episodes and 953 clinical reflux behaviors were recorded. ⁴
- The incidence and pattern of GER was similar in preterm and term infants. ⁴
- There was no significant difference in GER episodes and acid exposure in preterm infants fed orally or via nasogastric tube. ⁴
- The symptom association probability was abnormal in only 6 (19%), 1 (5%), and 5 (28%) infants with irritability, bradycardia, and desaturation, respectively. ⁴

Abdallah
et al. ⁵

- Wheezy infants with silent reflux and wheezy infants with typical GERD symptoms but normal MII-pH had significantly higher BAL pepsin compared to healthy control (45.3 ± 8.6 and 42.8 ± 8 versus 29 ± 2.6 , <0.0001 and $= 0.011$, resp.). ⁵

- BAL pepsin had sensitivity (61.7%, 72%, and 70%) and specificity (55.5%, 52.9%, and 53%) to diagnose GERD associated infantile wheeze compared to abnormal MII-pH, reflux esophagitis, and lipid laden macrophage index, respectively. ⁵

Discussion

The link between dietary management, proper treatment methods, and GER disease in infants today.

Even though majority of the articles corroborate the link between dietary management, proper treatment methods, and the emergence of GER in infants, some of the studies consisted of different findings. For instance, the study performed by Funderburk et al. indicated that GER and acid exposure in infants are not intensified with nasogastric tubes. ⁴ The MII-pH uncovered minimal prevalence of GER. ⁴ That is why there is a lack of correlation between reflux events and reflux behaviors. ⁴ Similarly, Qureshi et al. did not find a substantive link as well. His study was in consensus with that of Vandenplas et al. who reported in infants (1.5 to 4.5 months) and Schilter et al. who reported in children (14 days to 19 years old), that the frequency and clearance of GER is more prominent when the infant is awake, and the duration of GER was prolonged in sleep. ³

References

- Suqi Y, Xiaoli X, Qi W, et al. Preventative effect of massage on gastric volvulus in infants with gastroesophageal reflux-induced pneumonia. *Journal of Traditional Chinese Medicine* . 2015; 35(5): 520-527. https://www.openaire.eu/search/publication?articleId=base_oa_____::89705f6267bee3f641f7f0251134de39. doi: 10.1016/s0254-6272(15)30134-5.
- Djeddi D, Stephan-Blanchard E, Léké A, et al. Effects of smoking exposure in infants on gastroesophageal reflux as a function of the Sleep-Wakefulness state. *The Journal of Pediatrics* . 2018; 201: 147-153. <https://www.sciencedirect.com/science/article/pii/S0022347618307807>. doi: 10.1016/j.jpeds.2018.05.057.
- Qureshi, Aslam, MBBS| Malkar, Manish, MD, MPH| Splaingard, Mark, MD| Khuhro, Abdul, MD| Jadcherla, Sudarshan, MD, FRCPI, DCH, AGAF. The role of sleep in the modulation of gastroesophageal reflux and symptoms in NICU neonates. *Pediatric Neurology* . 2015; 53(3): 226-232. <https://www.clinicalkey.es/playcontent/1-s2.0-S0887899415002684>. doi: 10.1016/j.pediatrneurol.2015.05.012.
- Funderburk A, Nawab U, Abraham S, et al. Temporal association between reflux-like behaviors and gastroesophageal reflux in preterm and term infants. *Journal of Pediatric Gastroenterology and Nutrition* . 2016; 62(4): 556-561. <https://www.ncbi.nlm.nih.gov/pubmed/26334254>. doi: 10.1097/MPG.0000000000000968.

- Abdallah AF, El-Desoky T, Fathi K, Elkashef WF, Zaki A. Clinical utility of bronchoalveolar lavage pepsin in diagnosis of gastroesophageal reflux among wheezy infants. *Canadian respiratory journal* . 2016; 2016: 9480843-7. <https://www.ncbi.nlm.nih.gov/pubmed/27516725> . doi: 10. 1155/2016/9480843.
- Czinn SJ, Blanchard S. Gastroesophageal reflux disease in neonates and infants: When and how to treat . 2013; 15(1): 19-27. <https://link.springer.com/article/10.1007%2Fs40272-012-0004-2> .