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Effectiveness Of Gastrointestinal Massage On Abdominal Distension, Gastric Residual Content, And Gastrointestinal Function In Nasogastric Tube Patients Admitted To The Icu - A Systematic Review

Mr. Hilal N I[1], Dr.Santhi S[2], Dr. Nirmala V[3], Dr.Anitha Rani[4]
[1]PhD scholar, Sri Ramachandra Institute of Higher Education and Research, Chennai
[2]Vice Principal, Faculty of Nursing, Sri Ramachandra Institute of Higher Education and Research, Chennai
[3]Principal, MES College of Nursing, perinthalmanna, Malappuram, Kerala
[4]Assoc.professor, Community Medicine Department, Sri Ramachandra Institute of Higher Education and Research, Chennai

Abstract

Objective: It is required to evaluate the relevant literature in order to asess the effectiveness of gastro intestinal massage on gastric residual content, abdominal distension, and gastrointestinal function in nasogastric tube patients admitted to intensive therapy units.
Design: Systematic Review
Data Source: A comprehensive literature search was conducted from 2010 to 2022 in national and international journals - library, pub med, Google search.
Evaluation Method: We included a peer review article with a quantitative research design, various true and quasi-experimental studies investigating the effectiveness of interventions on various variables aimed at improving patients' gastrointestinal well-being.
Result: In critically ill patients with a nasogastric tube, systematic studies demonstrate that gastrointestinal massage is beneficial in lowering residual gastric content, frequency of vomiting episodes, and abdominal distension.
Conclusion: The examination and evaluation of side effects is the responsibility of the nurse, who also keeps track of the incidence and frequency of vomiting as well as abdominal distension. Planning the patient's nutritional requirements and ensuring safe and effective feeding are the nurses' responsibilities. Nursing care can avert the majority of the complications that arise as a result of gastrointestinal issues.

Key Words: gastrointestinal massage, application of heat, residual volume of the stomach, abdominal distension, functions of the gastrointestinal tract.

Introduction

Gastrointestinal disturbances are the common problem in critically ill patients and are increasingly being recognized in intensive care units. Acutely ill patients who are under high stress or have other serious health problems can rapidly deplete their body stores of protein and energy. If adequate nutrition is not provided, malnutrition and protein wasting can occur, which can adversely affect patient outcome.Common issues in the intensive care unit include digestive disorders, anorexia, nausea, vomiting, hematemesis, late gastric emptying, aberrant gastric motility patterns, and poor intestinal barrier. It has long been known that the clinical outcome of ICU patients depends significantly on how well their gastrointestinal tract functions. The emergence of clinical signs that point to an intestine issue is linked to tube feeding failure, complications, and morbidities that could have an impact on the patient's ability to survive. Functional bowel in the critically ill is of great clinical significance.

Nutrition is a key concept in maintaining, preserving and restoring health in critical care settings. Contrary to the outdated belief that hospitalized patients are too sick to be fed, we now know that appropriate and timely nutritional interventions can improve patient recovery and survival and reduce complication rates. Many acutely ill patients are unable to take food orally for a variety of reasons, indicating the need for specialized nutritional support. In this situation, strong evidence supports the use of enteral rather than parenteral nutrition in the absence of any real contraindication.For patients who cannot swallow food and liquids safely or who are unable to consume a sufficient amount of ordinary meals or oral nutritional supplements, tube feeding is used to deliver nourishment. The most frequent users are those experiencing dysphagia, either because they fail to satisfy their daily nutritional requirements despite consuming dietary supplements and adjusting the texture and consistency of their food or because eating or drinking presents a danger of aspiration.[1]

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For the offered nourishment to be absorbed, the gastrointestinal (GI) tract must be reachable and suitably functional.When feeding via an enteral tube is risky or unlikely to be successful, parenteral nutrition is likely to be the therapeutic approach of choice, such as in situations when the GI tract is inaccessible, there is significant malabsorption, or there are high gastrointestinal losses. Feeding intolerance, which frequently manifests as high gastric residual content (GRV), nausea, vomiting, and abdominal distension, is one of the serious side effects of enteral nutrition.It's crucial to measure the stomach's remaining volume before giving it food.The risk of aspiration pneumonia is increased by vomiting, which is the most hazardous NGT consequence. However, other NGT issues, such as aspiration pneumonia or constipation, can also induce significant residual stomach content. For the first 48 hours, check the stomach residual volume in patients with gastric problems every 4 hours. Reduce the frequency of gastric residual monitoring to every 6 to 8 hours for patients who are not severely ill or keep the monitoring interval at 4 hours once the desired enteral feeding rate has been achieved.[2].

Numerous research have shown that abdominal massage is an effective non-medical treatment for restoring excessive levels of residual stomach content, abdominal distension, and other specific gastrointestinal processes. It causes peristaltic movement, which in turn lowers intra-abdominal pressure, and aids in accelerating nutrient absorption through the digestive system. Additionally, they have been demonstrated to be non-invasive, non-pharmacological, safe, and effective treatments with no negative side effects.

Additionally, gastrointestinal massage alters intra-abdominal pressure and boosts vagal activity. Stomach motility and stomach emptying are both improved by an increase in vagal activity.Due to its many advantages, ease of use by nurses, and lack of any unfavorable side effects, abdominal massage was listed by Uysal et al. (2012) as the suggested nursing intervention without medication for the management and prevention of gastric and intestinal side effects.[4]

The current study's objective was to review the evidence from randomized controlled trials on the impact of gastrointestinal massage on these characteristics since patients receiving gastric tube feeding in intensive care units experience abdominal distension.

Methods

Study Identification

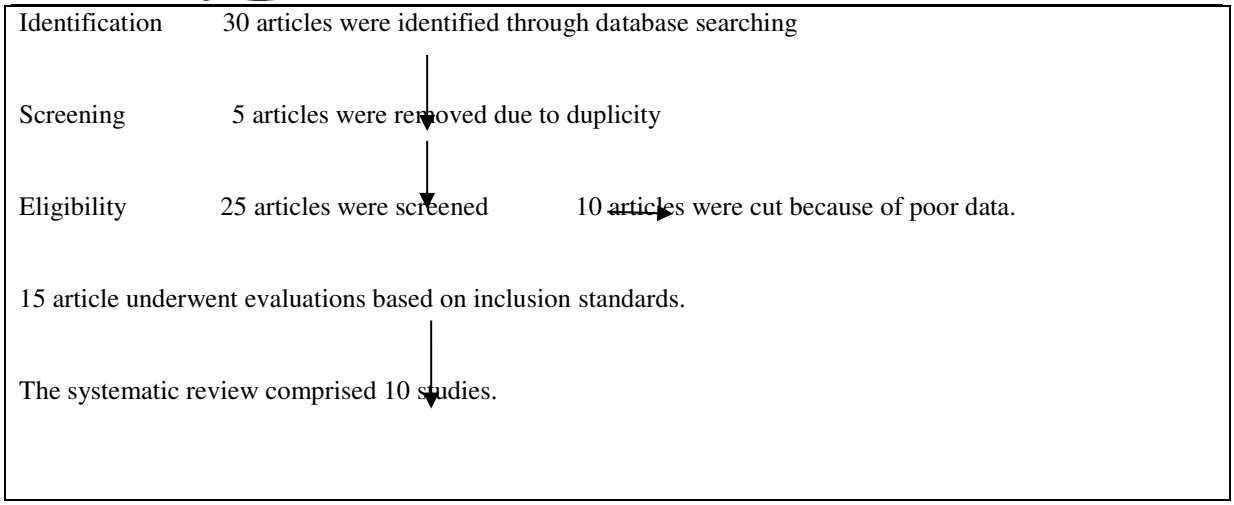
A comprehensive literature search of national and international journals, E-library, Pub med, Science direct and Google search was conducted between 2010 and 2021 to find all articles on the effect of gastrointestinal massage on stomach residual volume, abdominal distension and gastrointestinal tract functioning.

Study Selection

The researcher first determined whether the studies discovered during the search fulfilled the inclusion criteria by analyzing the titles and abstracts. After reading the abstract, any remaining inquiries were answered by reading and analyzing the entire piece to determine its suitability for inclusion.

Articles included in the review were those that described the following aspects, such as gastrointestinalmassage, gastric residual content, abdominal distension, and gastrointestinal function studies performed in the last 10 years using a Boolean search. Studies were excluded due to duplication and if study results were poorly reported.

Flow Chart



Study Characteristics

To acquire research characteristics data on sample description, intervention components, and results, completed papers presenting included studies were evaluated. Data were then independently extracted from those articles. Through boolean search, we looked for studies conducted over the previous 11 years. The research article's description of elements such gastrointestinal massage, gastric residual content, abdominal distension, and gastro intestinal functioning was the main point of emphasis.

Source	Title of Study	Authors	Methods	Intervention	Participants	Findings of the Study
Journal of Intensive Care.2018; 6:47.	Investigating how abdominal massage affects the stomach residual volume in patients receiving care in intensive care units	FarzadMomenfar, Alizera Abdi, NadarSalari, Ali Soroush, BehzadHemmatpour.	Clinical trail	Abdominal massage	30 patients- case group. 30 patients-control group	The results of the study showed that abdominal massage can considerably lower gastric residual volume (GRV) in patients receiving enteral nutrition through a nasogastric (NG) tube in intensive care units.[3]
Gastroenterology Nursing.2012 March-April; 35(2):117-23.	Arandomized controlled trial examined the impact of abdomen massage on gastric residual volume.	Uysal N, Eser I, Apkinar H.	A Randomized Controlled Trail.	Abdominal massage	40 patients-interventional group. 40 patients-control group	The findings suggest that the application of gastrointestinal massage in subjects receiving enteral nutrition is essential for the management of high residual gastric content and abdominal distension.[4]

Italian Journal of Paediatrics .2014 November 14; 40:89.	A premature infant's risk of feeding intolerance is reduced by belly massage	Tekgunduz K S,GurolA ,Apay S E,Cancer I	quasi-experimental pre-post-test design	Abdominal massage	14premature babies are in the case group. 13 members of the control group	To reduce excessive gastric residual volume and abdominal distension in preterm infants receiving enteral feedings, the study advises nurses to add abdominal massage into their regular care routines.[5]
Journal of Clinical Nursing.2018 Jan;27(1-2):92-101	A randomized controlled trial examined the impact of enteral feeding improvement massage on preterm neonates.	Kim H Y,Bang K S.	A randomized controlled trail	Enteral feeding improving massage	55 patients 26 in experimental group. 29 in control group	This study shows that massage to improve enteral feeding may be useful in achieving earlier full enteral feeding, greater enlargement of the superior mesenteric artery, and faster growth.[6]
International Journal of Nursing Studies.2015 February; 52(2):519-24.	Does belly massage affect the emergence of ventilator-associated pneumonia in intubated and enterally fed patients?	Dehghan M,Fatehei poor A,Mehdi poor R,Admedinejad M.	Randomized Controlled Trial	Abdominal massage	70	According to the research, persons receiving enteral nourishment through an endotracheal tube can benefit from gastric massage in terms of improved stomach function. Gastric massage is suggested as an extra therapy for patients in intensive care units to enhance gastrointestinal function.[7]
International Journal of Nursing studies.2015 Feb; 52(2):519-24.	The impact of abdominal massage administered to intubated and enterally fed patients on the development of ventilator associated pneumonia	Kahramen B B,Ozdemir L	Randomized controlled design	Abdominal massage	32	The study showed that abdominal massage reduced both residual gastric volume and abdominal distension in patients who were intubated and receiving enteral feeding.[8]

International journal of nursing studies.2009 jun;46(6): 759-67	Effect of abdominal massage in management of constipation.	Lamas K, LindholmL,StenlundH,EngstromB, JacobsonC	A Randomized controlled trial.	Abdominal massage	60	Abdominal massage improved bowel motions while reducing the severity of gastrointestinal symptoms, particularly constipation and abdominal pain syndrome.[9]
European journal of integrative medicine. Volume 10, 2017February, Page 75-81.	The impact of caregivers massaging the patient's abdomen on stomach complications that arise from intermittent enteral feeding. Controlled trial using randomization.	NurcanUysal	A randomized controlled trail	Abdominal massage	50	The study found that intermittent enteral feeding patients who received abdominal massage experienced decreased residual stomach volume, fewer episodes of vomiting, and relief from abdominal distension.[10]
International journal of advances innursing management.2019; 7(3):243-250.	Research to determine whether abdominal massage reduces the stomach residual volume in patients who are critically ill	S Narmadha,VPriyanka	Experimental design	Abdominal massage	30	Abdominal massage is a successful method for reducing gastric residual volume in critically ill individuals with nasogastric residual volume.[11]
IOSR Journal of nursing and health sciences, vol 8,no.04,2019,p. 60-62	An investigation of how well belly massage affects patients receiving nasogastric tube feeding in a particular hospital.	Thomas S S.	Experimental design	Abdominal massage	50	This study showed that intermittent nasogastric tube feeding patients can reduce gastric residual volume by using belly massage as a strategy. 12

Discussion

In this study, patients with nasogastric tubes who were admitted to the intensive care unit of a particular hospital were examined to determine the effects of gastric massage on gastric residual content, abdominal distension, and gastrointestinal function. These investigations demonstrated that intermittent nasogastric tube feeding patients who received abdominal massage had a decreased gastric residual volume. Additionally, the study showed that abdominal massage decreased mean straining scores and the difficulty in completely emptying the bowels while increasing bowel movement frequency, weight, and consistency.This study also demonstrated that intermittent enteral feeding patients who received abdominal massage therapy experienced decreased vomiting episodes, lower gastric residual volume, and relief from abdominal distension. The findings also highlight thatcaregivers can be trained to apply abdominal massage successfully to patients.

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