Milk and Molasses Enemas: Clearing Things Up

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Introduction: We aimed to describe current nursing practice and clarify the safest and most effective dose of milk and molasses enemas used to relieve constipation in pediatric patients presenting to a suburban pediatric emergency department.

Methods: We surveyed emergency nurses about current practice in administration of milk and molasses enemas. In addition, we identified consecutive patients aged 2 to 17 years with a discharge diagnosis of constipation or abdominal pain between 2009 and 2012. Stable patients were included from the emergency department, in the absence of chronic medical conditions. For each patient, we recorded demographic characteristics, chief complaint, nursing administration technique, stool output, patient tolerance, side effects, amount of enema given, and patient disposition.

Results: We identified 500 patients with abdominal pain or constipation, 87 of whom were later excluded. Milk and molasses enemas were found to be effective at relieving constipation in our population, with a success rate averaging 88% in patients given 5 to 6 mL/kg with an institutional guideline maximum of 135 mL. The success rate was found to vary with age, along with the amount of enema given.

Discussion: Our nursing survey showed that varying practice exists regarding technique and dosing of milk and molasses enemas. Historical chart review showed that milk and molasses enemas in our emergency department were safe and effective with minimal side effects.

Key words: Constipation; Encopresis; Enema; Milk; Molasses; Pediatric

Constipation is commonly treated in the pediatric emergency department with milk and molasses enemas. Milk and molasses enemas are hyperosmotic, causing water to be drawn into the intestines, promoting stool evacuation.[1] In addition, there is therapeutic effect found in the reaction of sugar combining with milk, creating gases and promoting peristalsis, leading to properties of irritation to the intestinal lining, as well as softening of stool.[1]

At times, milk and molasses enemas have been shown to have harmful effects similar to those seen with other enemas, such as rectal perforation and allergic reactions. Unlike other enemas, milk and molasses enemas have also been associated with cardiopulmonary compromise.[1] However, the association between milk and molasses enemas and cardiopulmonary compromise was only identified in a single-site case series, in which all patients had serious underlying medical conditions.[1] There are still many hospitals, including ours, that use milk and molasses enemas for children with constipation, therefore showing the need for further research to evaluate the safety of this treatment and develop a standardized dosing protocol in stable patients without severe underlying conditions.

Milk and molasses enemas should be avoided in patients with allergies to either milk or molasses, and care should be taken in administration to patients with serious underlying medical conditions because serious side effects have been reported.[1] It is recommended that these enemas only be administered in the ED setting to allow for close monitoring.[2] Few standards exist for preparation and administration of milk and molasses enemas, and current guidelines suggest varying amounts of milk and molasses for administration.[2–4]

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Our study was initiated with 2 aims in mind. The first aim was to describe milk and molasses enema administration techniques among pediatric emergency nurses. The second aim was to identify a safe and effective dose for milk and molasses enemas that would also produce the greatest effect with the fewest adverse events and side effects.

Methods

DESIGN

Our study consisted of 2 parts. Part 1 was an anonymous online survey completed by nurses after each enema administered to pediatric patients. Part 2 consisted of a retrospective chart review on a cohort of children who received enemas for the treatment of constipation in a tertiary-care pediatric emergency department. Data were extracted from the existing medical record, and there was no further contact with or interventions performed on study participants. Approval was received from the University of Michigan Institutional Review Board for exempt status.

SETTING

The University of Michigan Children's Emergency Department is a suburban, tertiary-care referral center with more than 20,000 pediatric ED visits in 2012.

SURVEY SAMPLE

Approximately 20 pediatric nurses, with varying levels of expertise, were invited to participate in the recurrent survey regarding enema administration. Inclusion criteria were current employment status as a registered nurse in Children's Emergency Services and administration of a milk and molasses enema between September 2010 and May 2012. A link was sent to registered nurses who were currently employed in Children's Emergency Services through their work E-mail addresses that directed them to complete a brief 10-question anonymous online survey—after administration of each enema—during the 21-month period from September 2010 to May 2012.

SURVEY ADMINISTRATION

Survey data were collected by use of an anonymous online survey distributed by a hyperlink included in a group E-mail to all pediatric emergency nursing staff on a quarterly basis. Once the nurse accessed the hyperlink, questions were asked regarding the nurse's professional background and experience with administering enemas. No personal identifiers were collected in this survey. Surveys were completed by staff members each time they administered an enema to different patients aged between 2 and 17 years. Information was obtained about the enema administration device used; amount typically administered; and perception of the patient's tolerance, using a pain scale from 0 to 10 based on the nurse's perception of patient behavior after the enema. Survey data were reviewed by research staff only.

CHART REVIEW

A retrospective chart review was performed for patients aged 2 to 17 years who visited the University of Michigan Children's Emergency Services from January 2009 to April 2012 and who were documented to have a discharge diagnosis of constipation or abdominal pain to determine whether a milk and molasses enema was administered. Patients were excluded if they had a chronic medical condition such as seizure disorder, chronic lung disease with respiratory compromise, congenital heart disease, immune compromise, or previous rectal surgery. Children who were critically ill on arrival to the emergency department or hemodynamically unstable were excluded as well.

Data collected from eligible patient records included patient demographic characteristics and the following key variables: patient age, sex, chief complaint, weight, total volume of enema administered, stool output (none, small, moderate, or large), side effects, adverse events, and patient disposition. Patient age was categorized into 3 groups: 2 to 9 years, 10 to 15 years, and 16 to 17 years. The enema amount (in milliliters per kilogram) was calculated and categorized into the following groups: 1 to 4 mL/kg, 5 to 6 mL/kg, and 7 mL/kg or greater. The main outcome of interest was enema success rate based on nurse documentation of at least moderate stool and minimal side effects (including abdominal pain, vomiting, and need for admission).

STATISTICAL METHODS

Descriptive statistics were calculated for nursing surveys completed and chart review data. A 2-proportion Z test was used for differences between categorical enema amount and enema success rates. All analyses were conducted with Microsoft Excel 2010 (Microsoft, Redmond, WA), and $P < .10$ was considered statistically significant. We separated the groups analyzed into the following groups, taking into consideration the sample size for each group: 1 to 4 mL/kg, 5 to 6 mL/kg, and 7 mL/kg or greater. The survey results were downloaded and descriptive statistics calculated.

INTERVENTION

A standard guideline, available from within our institution, was used as a reference for enema administration within our study.[3] Enemas used during the study consisted of a 1:1 solution of whole milk and molasses administered either through an enema bag, enema bottle, or flexible tubing with