Enema Administration During Labor: Pregnant Women’s Perspective and Knowledge

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Abstract

Introduction: Current evidence does not support the routine use of rectal enemas (REs) because they have not been associated with reduced rates of puerperal infection, degree of perineal tear, or duration of labor. A recent literature review recognized knowledge gaps regarding the uses of RE during labor including women’s perceptions, pain, and satisfaction.

Objectives: To report pregnant women’s knowledge, attitudes, perceptions, pain, and satisfaction associated with the use of RE during labor.

Methods: A prospective study was conducted between 20 October 2019 and 20 October 2020. Women were included if they were 37 weeks or more pregnant, had a viable pregnancy, were admitted in labor, and had an RE. Characteristic data and data about knowledge, perceptions, attitudes, pain, and satisfaction associated with its use were recorded. Women were regrouped based on their level of knowledge into low- and high-level groups. Attitudes, perceptions, inconveniences, pain, and satisfaction were regrouped into two categories: low and high on the Likert scale.

Results: A total of 300 women were recruited, with means (SD) for age and gestational age of 27.8 (4.8) years, and 40 (1.1) weeks, respectively, and 45.7% were knowledgeable or very knowledgeable, 76% had a positive attitude, and 88.7% perceived enemas as important. The mean scores (SD) for pain and satisfaction as measured on visual analogue scales were 1.5 (1.8) and 5.4 (1.8), respectively. Women with high knowledge about RE were older and multiparous. Recruited women were more likely to report lower inconvenience and pain scores and higher satisfaction scores (all \(P<.05\)).

Conclusion: Most recruited women were knowledgeable about REs, perceived them as important, and expressed a positive attitude toward their administration. The low levels of inconvenience, pain, and complications and the high satisfaction rates may be used when counseling women about when an RE is required during labor.

Keywords

rectal enema, labor, knowledge, attitude, perception, inconvenience, pain, satisfaction

Received 3 August 2022; revised 2 October 2022; accepted 30 October 2022

Introduction

A rectal enema (RE) is a procedure where a fluid is injected into the lower part of the large intestine via the anal canal (Hinkle & Smeltzer, 2014). The procedure can be either therapeutic to relieve constipation or diagnostic for imaging studies such as barium enemas. While REs have been used during labor for a long time, their use is not universally accepted as a standard practice (Drayton & Rees, 1984). In addition, their use is influenced by the preferences of pregnant women, attending obstetricians, and midwives and by the availability of resources (Reveiz et al., 2013). Various studies reported different rates in the practice of using REs

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during labor. Chalmers et al. (2009) reported a low rate of enemas administered during labor in Canada (5.4%) while another study from Turkey reported a high rate of 80.6% (Çalik et al., 2018). Additionally, factors that are associated with higher rates of RE administration during labor included maternal ages younger than 19 and older than 40, pregnant women, being in her first pregnancy, low educational achievement, and low income (Chalmers et al., 2009).

Advocates for routine enema administration during labor argued that they reduce the risks of infection involving perineal lacerations, episiotomies, and the endometrium, in addition to reducing the discomfort associated with the bowel movement of a constipated mother in the postpartum period. Furthermore, it was shown to be perceived positively by laboring women (Lopes et al., 2001). On the other hand, other reports advised against their routine use as they have no proven effect may increase the risk of genital infection, and are associated with increased women’s discomfort, in addition to increasing the workload in the labor ward (Romney & Gordon, 1981). Apart from the routine administration of REs, they are used for the treatment of prevalent functional constipation during pregnancy and labor, where the prevalence rate was reported to be between 11% and 38% (Jewell & Young, 2001).

A Cochrane review (Reveiz et al., 2013) showed that the routine administration of REs during labor was not associated with reduced rates of maternal puerperal infection, neonatal umbilical stump infection, degree of perineal tears, or the mean duration of labor. Therefore, their routine use was advised against. Furthermore, the review recognized various knowledge gaps including women’s perceptions regarding the use of REs during labor in addition to the pain and inconvenience associated with the procedure.

There are limited recently published reports about the use of RE in obstetrics, and the results of the current report may help in bridging the current knowledge gap. Therefore, the aims of our study were to report pregnant women’s knowledge, attitude, perception of importance, and levels of inconvenience, pain, and satisfaction associated with RE administration during labor along with serious complications.

Methods

Study Design and Setting

A prospective cross-sectional study of pregnant women was conducted between 20 October 2019 and 20 October 2020 in the labor ward of the Specialty Hospital, Amman, Jordan. A pilot study that included 25 pregnant women who attended the labor ward was performed prior to the start of the study; they were asked to complete the study questionnaire, and their comments regarding the study variables were considered in the study protocol.

Study Population, Sampling, and Sample Size

Pregnant women who were admitted to the labor ward were approached to take part in the study. To minimize bias, every other woman was approached to take part in the study. Inclusion criteria required the woman to be 18 years of age or more, have a viable pregnancy with a gestational age of 37 weeks or more, be admitted to the labor ward either in labor or for induction of labor (IOD), and have consented to an RE on admission either by choice or following the attending obstetrician or midwife’s suggestion. Exclusion criteria included the pregnant woman being in an advanced stage of labor and having had recent rectal bleeding, acute anal fissure, or painful hemorrhoids.

The study ran for one year, and a convenience sampling method was chosen. At the conclusion of the duration of the study, the data of the recruited women were analyzed.

Study Procedure, Instruments for Data Collection

On admission to the labor ward, after informed consent and before enema administration, characteristic data and information about knowledge, attitude, and perception of importance regarding enemas during labor were collected on a prepared data collection sheet. Women’s characteristic data included age, parity, gestational age, education, employment status, family income, and if the woman had constipation at the time of admission. In addition, the reason for admission was recorded whether it was spontaneous labor or IOL. Furthermore, information regarding levels of inconvenience, pain, overall satisfaction, and complications were recorded 30 min after enema administration and before any planned obstetric procedures started.

For this study, the following definitions were adopted. Knowledge level about RE is how much information a woman knows about an RE. Attitude toward an RE is a woman’s intentions toward having an RE whether positive (will have RE) or negative (will not). Perception of importance is a woman’s opinion about the importance of an RE. Inconvenience is a woman’s loss of comfort associated with an RE. Pain is the pain associated with the insertion of the RE tube, and satisfaction is the fulfillment of expectations from the procedure of an RE. All these definitions were explained to the recruited women by the research team prior to the start of data collection.

Women’s knowledge of enemas was measured using the Likert scale (LS) with scale levels of not knowledgeable about, somewhat knowledgeable about, knowledgeable about, and very knowledgeable about (Robinson, 2014). Women’s attitudes toward the use of REs were measured using the LS (strongly disagree, disagree, no opinion or uncertain, agree, and strongly agree). Women’s perception of RE’s importance was measured using the LS (very important, important, moderately important, slightly important, and not important). The inconvenience associated with the use of REs was measured on the LS (very low, low, moderate, high, and very high). Pain associated with the insertion of the RE tube was measured using the visual analog scale (VAS; Voutilainen et al., 2016). The overall satisfaction was measured using the VAS and LS (very low, low, moderate, high, and very high).
Data Analysis

Statistical analysis was performed using IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY. Continuous variables were expressed as means and standard deviations (SDs) and categorical variables as frequencies and percentages. To facilitate comparisons, recruited women were regrouped based on their level of knowledge about REs into low and high levels of knowledge groups and both groups were compared. Furthermore, the attitudes, perceptions, inconveniences, pain, and satisfaction were regrouped into two categories: low and high. The low level included very low, low, and moderate, and the high level included high and very high on the LS.

The differences between the low and high knowledge groups with regard to age, parity, income, and education in addition to attitudes, perceptions, inconvenience, pain, and satisfaction related to or associated with REs were assessed using $\chi^2$. A P-value of <.05 was considered statistically significant. The study was approved by the Research Ethics Committee of the Specialty Hospital.

Table 1. Participants Characteristic Data and Obstetrics Variables.

| Variable               | Category           | No. | Percentage |
|------------------------|--------------------|-----|------------|
| Family income          | Less than 700 USD  | 6   | 2.0        |
|                        | 700–1,500 USD      | 221 | 73.7       |
|                        | More than 1,500 USD| 73  | 24.3       |
| Education              | Secondary education or less | 58  | 19.3  |
|                        | College            | 39  | 13.0       |
|                        | University         | 203 | 67.7       |
| Parity                 | First pregnancy    | 143 | 47.7       |
|                        | Multiparous        | 157 | 52.3       |
| Antenatal care         | Regular            | 297 | 99.0       |
|                        | Irregular          | 3   | 1.0        |
| Labor                  | Spontaneous        | 182 | 60.7       |
|                        | Induced            | 118 | 39.3       |
| Constipation on admission | Yes               | 68  | 22.7       |
|                        | No                 | 232 | 77.3       |

Table 2. Women’s Knowledge About Enema During Labor (RE: Rectal Enema).

| Variable                                          | Category               | No.  | Percentage |
|---------------------------------------------------|------------------------|------|------------|
| Women’s knowledge about RE                        | No knowledge about     | 101  | 33.7       |
|                                                   | Somewhat knowledgeable | 62   | 20.7       |
|                                                   | Knowledgeable about    | 57   | 19.0       |
|                                                   | Very knowledgeable about | 80  | 26.7       |
|                                                   | Knowledgeable about RE | 199  | 66.3       |
|                                                   | • Previous use         | 99/199 | 49.8   |
|                                                   | • Relative/friend      | 54/199 | 27.1   |
|                                                   | • Doctor/midwife       | 29/199 | 14.6   |
|                                                   | • Media                | 17/199 | 8.5    |
| Recommendation of the source of knowledge regarding RE | Not knowledge about RE | 101  | 33.7       |
|                                                   | Knowledgeable about RE | 199  | 66.3       |
|                                                   | • Recommended use      | 179/199 | 90     |
|                                                   | • Did not recommend    | 20/199 | 10      |
| Women’s knowledge about complications of RE       | No knowledge about RE  | 101  | 33.7       |
|                                                   | Knowledgeable about RE | 199  | 66.3       |
|                                                   | • No complications     | 45/199 | 22.6   |
|                                                   | • Has complications    | 3/199  | 1.5     |
|                                                   | I don’t know           | 151/199 | 75.9  |
| Who should decide about having RE in this labor?  | Laboring woman         | 15   | 5.0        |
|                                                   | Obstetrician/midwife   | 177  | 59.0       |
|                                                   | Joint decision         | 108  | 36.0       |
Table 3. Current Experience with the use of Rectal Enema During Labour. Attitude, Perception, Inconvenience, Pain, and Satisfaction.

| Variable                                      | Category                          | No.   | Percentage |
|------------------------------------------------|-----------------------------------|-------|------------|
| Attitude                                      | Would like to have RE in this labor? |       |            |
|                                                 | Yes (positive attitude)            | 228   | 76.0       |
|                                                 | No (negative attitude)             | 72    | 23.0       |
|                                                 | Positive attitude (228 of 300)     |       |            |
|                                                 | Why would you choose to have RE in this labor? |       |            |
|                                                 | Cleanliness                        | 177/228 | 77.6     |
|                                                 | RE helps accelerate labor          | 33/228 | 14.5      |
|                                                 | I don’t know                       | 18/228 | 7.9       |
|                                                 | Negative attitude (72 of 300)      |       |            |
|                                                 | Why would you choose not to have RE? (72 women) |       |            |
|                                                 | RE might cause pain                | 18/72  | 25        |
|                                                 | Fear of the procedure              | 24/72  | 33.3      |
|                                                 | RE is unnecessary                  | 12/72  | 25        |
|                                                 | I don’t know                       | 18/72  | 16.7      |
| Women’s perception of the importance of RE during labor and delivery | Not important                     | 14     | 4.7        |
|                                                 | Slightly important                 | 20     | 6.7        |
|                                                 | Moderately important               | 123    | 41.0       |
|                                                 | Important                          | 133    | 44.3       |
|                                                 | Very important                     | 10     | 3.3        |
|                                                 | Very low                           | 25     | 8.3        |
|                                                 | Low                               | 192    | 64.0       |
|                                                 | Moderate                          | 62     | 20.7       |
|                                                 | High                              | 19     | 6.3        |
|                                                 | Very high                         | 2      | 0.7        |
|                                                 | Low: <the mean                     | 194    | 64.7       |
|                                                 | High: >the mean                    | 106    | 35.5       |
| Inconvenience associated with the use RE       | Low: Below the mean                | 194    | 64.7       |
|                                                 | High: Above the mean               | 106    | 35.3       |
| Pain scores (Measured on VAS)                  | Very low                          | 4      | 1.3        |
|                                                 | Low                               | 26     | 8.7        |
|                                                 | Moderate                          | 75     | 25.0       |
|                                                 | High                              | 185    | 61.7       |
| Overall satisfaction with the use of RE        | Very high                         | 10     | 3.3        |

RE: rectal enema, VAS: visual analog scale.

Table 4 shows the intergroup comparisons of the various variables that were statistically significant between women with low and high knowledge about REs. The results showed that older and parous women were more likely to have high knowledge. Additionally, compared to women with low knowledge levels, women with high knowledge levels were more likely to have positive attitudes. Regarding perception of importance, women with low knowledge were more likely to perceive REs as more important. Women with high knowledge levels were more likely to report lower inconvenience and higher satisfaction levels. In addition, data analysis showed that the level of knowledge was not related to gestational age, educational achievement, family income, or recent history of constipation (P values: .48, .96, .761, and .33, respectively). In addition, the level of inconvenience was not related to the level of knowledge (P = .172). The results also showed that none of the recruited women reported serious complications.

Discussion

Bowel preparation by way of an RE may be required during pregnancy for a diagnostic procedure such as a colonoscopy.
While various types of preparations are available, sodium phosphate is a common shared choice between obstetricians and gastroenterologists during pregnancy (Vinod et al., 2007), and it was the choice of an enema that women were offered in this study. In addition, an RE may be required as a therapeutic option to relieve constipation during pregnancy and labor (Portalatin & Winstead, 2012).

Over two-thirds of the women who participated in this study had at least some knowledge about the use of REs during labor. In addition, women gained their knowledge from various sources including a relative/friend, healthcare workers, and the internet. A similar pattern regarding the source of health-related information among pregnant women was reported by Dalhaug and Haakstad (2019). Furthermore, 90% of the information sources of which 30% were healthcare workers recommended REs during labor which may have influenced women’s decisions regarding the use of REs. This raises several concerns including the content of information relatives and friends share with pregnant women regarding procedures and interventions and may also reflect knowledge deficiencies among healthcare workers. While it may be difficult to limit information input from relatives or friends, educating healthcare workers and establishing local guidelines regarding REs may control the rate of RE use during labor. Furthermore, the decision-making process about a healthcare product use during pregnancy is complex where women consider various factors such as the safety of the product for the baby and herself and if the product has complications. In addition, women may look for information from trusted sources such as medical websites (Barnes et al., 2019).

Women’s attitudes toward REs were influenced by several factors including knowledge sources and recommendations of knowledge sources. In our study, previous experiences and healthcare workers accounted for 50% and 15% of knowledge sources, respectively. Additionally, 90% of the different sources’ recommendations were in favor of enema administration. Similar patterns and influencing factors were reported in other areas of obstetrics. Peprah et al. (2018) showed that pregnant women’s attitudes toward healthcare services during pregnancy and birth may be influenced by previous experiences. In addition, women’s attitudes toward interventions in obstetrics such as mode of birth were shown to be influenced by knowledge sources such as relatives and healthcare workers (Moosavi et al., 2017).

Over 88% of women in our study perceived REs as important. Surprisingly, both women with low and high levels of knowledge perceived REs as important. While women with a low knowledge level may perceive REs as important probably because they were suggested by a trusted healthcare practitioner or relatives/friends (Barnes et al., 2019), we would expect that women who have high knowledge to perceive them as less important. This raised concerns about the content of knowledge women have. While there are no published studies addressing women’s perceptions of the importance of REs during labor to compare our results with, another report showed that wrong knowledge about certain food groups during pregnancy affected women’s perception of their importance and subsequently affected their intake. This again reflects the importance of not only knowledge but also knowledge content (Shah et al., 2017). The inconvenience

| Variable                          | Low knowledge level | High knowledge level | $\chi^2$ | $p$-value |
|-----------------------------------|---------------------|----------------------|--------|----------|
| Age (years)                       |                     |                      |        |          |
| 18–25                             | 75 (46.0)           | 33 (24.1)            | 23.19  | <.001    |
| 26–35                             | 84 (51.5)           | 86 (62.8)            |        |          |
| 36–45                             | 4 (2.5)             | 18 (13.1)            |        |          |
| Parity                            |                     |                      |        |          |
| First pregnancy                   | 113 (69.3)          | 30 (21.9)            | 67.12  | <.001    |
| Multiparous                       | 50 (30.7)           | 107 (78.1)           |        |          |
| Attitude toward enema             |                     |                      |        |          |
| Positive (will have RE)           | 106 (65.4)          | 124 (90.5)           | 26.30  | <.001    |
| Negative (will not have RE)       | 56 (34.6)           | 13 (9.5)             |        |          |
| Perception of importance          |                     |                      |        |          |
| Low                               | 136 (51.1)          | 130 (48.9)           | 9.72   | .001     |
| High                              | 27 (79.4)           | 7 (20.6)             |        |          |
| Pain associated with RE           |                     |                      |        |          |
| Low level ($\leq $mean)           | 90 (55.2)           | 73 (44.8)            | 13.40  | <.001    |
| High level (>mean)                | 104 (75.4)          | 33 (24.1)            |        |          |
| Satisfaction with RE              |                     |                      |        |          |
| Low                               | 79 (84.5)           | 26 (19.0)            | 24.54  | <.001    |
| High                              | 88 (51.5)           | 111 (81.0)           |        |          |
level associated with REs in our cohort was low; this is probably related to the procedure being simple.

In our study, women reported low pain scores associated with the insertion of the RE tube with the mean (SD) being 1.5 (1.8). There are no published reports about pain associated with REs during pregnancy to compare our results with. A report from the emergency department showed that the mean (SD) for pain score associated with REs in patients who presented with constipation was 4.2 (3.2). While the RE procedure is the same in both our study and this report, in our cohort only 23% of women had constipation compared to 100% in the other study. This may explain why the pain scores are higher than our reported rate (Niv et al., 2013). We may argue that patients who present with constipation may be distressed which may affect their pain perception.

In our study, we measured satisfaction using the LS and VAS, and both scales correlated well with each other. On the LS, almost 65% of women were highly or very highly satisfied, and on VAS 61% of women had scores above the mean. A similar pattern of satisfaction with enema administration was reported by another report, where the mean satisfaction on the LS was 5.4 (Kovavisarach & Sringamvong, 2005).

Our results showed that almost 23% of the recruited women reported having constipation during pregnancy. It is therefore imperative to implement interventions such as a high-fiber diet and exercise during pregnancy to reduce the risks of constipation and subsequently the increased rates of REs (Shi et al., 2015). We acknowledge we have not compared enema administration in women with and without constipation during pregnancy as all women in our study had enemas.

None of the women in our study sustained a complication from the sodium phosphate enemas probably because complications are rare, and our sample size was small. Niv et al. (2013) reported a perforation rate of 1.8% in a nonpregnant population. The authors also showed that implementing guidelines for indications and procedures had resulted in reductions in the rates of both constipation and enema administration.

Antenatal counseling of pregnant women may increase their knowledge and may also affect their attitudes. Devkota et al. (2017) showed that while pregnant women had inadequate knowledge about the medication that they used during pregnancy, antenatal counseling had been shown to have a significant positive effect on their levels of knowledge and their attitudes.

The current study showed that women with high knowledge about enemas were older and multiparous, and women were more likely to have positive attitudes about enema administration. In addition, women were more likely to report lower inconvenience and pain scores and higher satisfaction levels. We believe the results of this study may help to fill in the knowledge gaps related to REs and may be used during counseling.

**Strengths and Limitations**

This study helped to bridge the current knowledge gap about the use of an RE in labor, and the results may be used in counseling women where an RE is indicated. The limitations of our study are that it was based in a single center and one type of enema was used as it was the only type available and it was not our aim to compare various types.

**Implications for Practice**

The use of an RE in labor may be indicated for the relief of constipation which is prevalent during pregnancy, and their use is perceived positively by pregnant women. The results may be used to counsel women when an enema is used.

**Conclusion**

Regarding REs during labor, most women were knowledgeable about their use, perceived them as important, and expressed a positive attitude toward their administration. The low levels of inconvenience, pain, and complications and the high satisfaction rates associated with enema administration may be used when counseling women about when REs are required during labor.

**Acknowledgments**

The authors would like to acknowledge all the midwives and nurses of the labor ward of the Specialty Hospital for their help and support in this project.

**Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Ethical Approval**

The institutional review board of the Specialty Hospital.

**Funding**

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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