


Section: Paediatric Nursing

Honey therapy in children with diarrhea

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Abstract

Diarrhea is a condition characterized by soft or liquid stool consistency, sometimes resembling water, with a frequency of three or more episodes per day. It is often a symptom of an infection in the digestive tract caused by various bacteria, viruses, or parasites. These infections can spread through contaminated food or drinking water, particularly in areas with poor environmental hygiene. Diarrhea can last for several days, leading to dehydration, electrolyte imbalances, and malnutrition, especially in children. Over time, persistent diarrhea can impair children's growth and development due to the loss of essential nutrients. In addition to standard pharmacological treatments, complementary therapies can be used to manage diarrhea, one of which is honey therapy. Honey contains minerals and carbohydrates that can aid in rehydration and help reduce the severity of diarrhea. The glucose content in honey supports the reabsorption of water and electrolytes secreted into the intestines during diarrhea. This happens through the sodium-glucose co-transport mechanism, which enhances the reabsorption of water by reducing the water content in the intestinal lumen. As a result, stool consistency improves. In this case study, complementary therapy was administered by giving the patient 5 cc of honey mixed with 10 cc of warm water. This honey therapy was given three times a day for three consecutive days. After the intervention, the frequency of diarrhea decreased from seven episodes of liquid stools to one episode with soft stools.

Keywords: Honey therapy; paediatric nursing; nursing care; nursing intervention; diarrhea

Introduction

Diarrhea is a condition characterized by soft or liquid stool, which may even resemble water, and occurs more frequently than usual, typically three or more times a day (Aranda-Michel & Giannella, 1999). A study explained that diarrhea is a symptom of an infection in the digestive tract caused by various bacteria, viruses, or parasites. The infection can spread through contaminated food or drinking water, often as a result of poor environmental hygiene. Diarrhea is also a leading cause of death among children under five (Drancourt, 2017). Diarrhea is an endemic disease with the potential to cause outbreaks and remains a significant contributor to mortality rates in Indonesia, particularly among children under five (Gore & Surawicz, 2003). The prevalence of a diarrheal disease among under-five children was 29.0% (Birhan et al., 2023). A study highlights that diarrhea in children can last for several days, leading to dehydration, electrolyte imbalances, and malnutrition, especially in young children (Koletzko & Osterrieder, 2009). Malnourished children are more susceptible to severe complications due to their weakened immune systems. In the long term, diarrhea can also impair a child's growth and development, as the condition causes a loss of vital nutrients (Skrable et al., 2017).

One complementary intervention for diarrhea is honey therapy. Laboratory studies and clinical trials have shown that pure honey has bactericidal properties that can combat several enteropathogenic organisms, including *E. coli*. WHO recommends rehydration fluids as the primary treatment for diarrhea, with Oral Rehydration Salts (ORS) reducing the risk of death but not affecting the frequency of diarrhea. Honey, however, is recognized in traditional medicine for its role in treating diarrhea and it is rich in nutrients such as carbohydrates, enzymes, amino acids, organic acids, minerals, and aromatic compounds (Olas, 2020). Honey also has antibacterial effects on intestinal bacteria that cause diarrhea, including *Salmonella*, *Shigella*, *E. coli*, and *Vibrio cholerae* (Mandal & Mandal, 2011). Research indicates that the administration of pure honey can reduce the frequency and improve the consistency of diarrhea in children (Mahyar et al., 2022). Honey combats infection, reduces the severity of acute diarrhea, and has a low pH that helps inhibit pathogenic organisms in the intestines and stomach. In this therapy, 5 cc of honey mixed with 10 cc of warm water is administered three times a day for five days. Honey offers several benefits for managing diarrhea due to its unique nutritional and antimicrobial properties. Rich in carbohydrates, enzymes, amino acids, organic acids, and minerals, honey provides essential nutrients that can aid recovery during diarrhea (Vahdat Shariatpanahi, Jamshidi, Nasrollahzadeh, Amiri, & Teymourian, 2018). One of its primary advantages is its ability to

promote rehydration by enhancing the absorption of water and electrolytes in the intestines through the sodium-glucose co-transport mechanism, which helps reduce stool water content and improve consistency (Islam, Islam, Anisuzzaman, & Hossain, 2019). Additionally, honey has natural antibacterial properties that can combat harmful intestinal bacteria. The low pH of honey further inhibits the growth of pathogens in the stomach and intestines. Research has shown that honey therapy can reduce the frequency and severity of diarrhea, as it not only helps fight the underlying infections but also supports faster recovery by replenishing lost fluids and nutrients (Andayani, Nurhaeni, & Agustini, 2019). Its natural, gentle composition makes it a suitable complementary treatment, especially for children, offering a safer alternative or adjunct to traditional pharmacological interventions while improving overall digestive health. Therefore, the study was aimed to investigate the benefits of honey to patient with diarrhea.

Case Description

In this case study, the author focused on a patient diagnosed with diarrhea, meeting the study criteria. The patient, identified as W, reported having seven episodes of defecation with yellow, liquid stool consistency, and vomiting three times after eating a boxed meal provided by his mother, which was brought from an event. The patient also complained of abdominal pain, weakness, lethargy, frequent thirst, and reduced appetite, consuming only half of the food portion given. The patient's mother reported no weight loss during the illness. Clinical observations showed increased intestinal peristalsis (28x/min), with vital signs as follows: BP 120/75 mmHg, pulse 100x/min, RR 20x/min, temperature 36.8°C, SpO2 99%. The patient's weight was 42 kg, height 140 cm, and BMI 21.4. The patient's fluid requirement was calculated at 1940 cc/day, with the patient consuming 700 cc orally and receiving 1000 cc via infusion, totaling 1700 cc of fluid intake. The patient vomited 200 cc, had 500 cc of urine output, 350 cc of stool output, and an insensible water loss (IWL) of 756 cc, leading to a total fluid output of 1806 cc. The fluid balance was calculated as -106 cc. Laboratory tests on January 25, 2024, revealed a hematocrit of 36.4% (normal range: 36.0-44.0%), erythrocyte count of 5.0 (normal range: 3.60-5.20 x 10⁶/uL), platelet count of 622.0 (normal range: 150-450 x 10³/uL), eosinophils at 0.0% (normal range: 1-6%), neutrophils at 8.47 (normal range: 40-75 x 10³/uL), RDW-CV at 15.2% (normal range: 11.6-14.4%), RDW-SD at 34.9 fL (normal range: 35.1-43.9 fL), MCV at 65.7 fL (normal range: 70-86 fL), and MCH at 21.2 pg (normal range: 23.0-31.0 pg). Stool examination showed yellow liquid stool with the presence of bacteria, while leukocytes, erythrocytes, and epithelium were absent.

The patient received infusion therapy (KAEN 3B at 20 tpm), and intravenous medications, including ondansetron (3x4 mg), paracetamol (4x400 mg), ranitidine (2x20 mg), cefotaxime (3x1 g), and L Bio (2x1 sachet). Two nursing diagnoses were established: diarrhea related to an infectious process (D.0020) and hypovolemia related to active fluid loss (D.0023). The diagnosis of diarrhea (D.0020) was confirmed by the patient's subjective complaints of seven episodes of defecation with yellow liquid stools, vomiting three times, and abdominal pain. Objective data included lethargy, increased intestinal peristalsis (28x/min), and bacterial presence in the stool. The hypovolemia diagnosis (D.0023) was supported by the patient's reports of frequent defecation, vomiting, weakness, thirst, and reduced appetite, along with objective data showing a pulse rate of 100x/min, dry mucous membranes, decreased skin turgor, and a negative fluid balance of -106 cc. For the diarrhea nursing plan related to the infectious process (D.0020), the goal after 3 days of intervention was to resolve diarrhea, with outcome criteria including improved stool frequency, consistency, reduced abdominal pain, and normalized intestinal peristalsis. Interventions included monitoring stool characteristics, administering oral fluids (5 cc of honey mixed with 10 cc of warm water), providing intravenous fluids, collecting stool samples for culture, recommending small frequent meals, and collaborating with medication administration (Diarrhea Management, I.03101). For the hypovolemia nursing plan related to active fluid loss (D.0023), the goal was to improve fluid status, with criteria including improved skin turgor, reduced thirst, improved mucous membranes, normalized pulse rate, and adequate fluid intake. Interventions included monitoring fluid intake/output, calculating fluid requirements, recommending increased oral fluid intake, and collaborating on IV isotonic fluid administration (Hypovolemia Management, I.03116). The implementation of the diarrhea-related interventions (D.0020) included administering 5 cc of honey mixed with 10 cc of warm water orally, three times a day for 3 days. Similarly, hypovolemia-related interventions (D.0023) focused on increasing oral fluid intake and providing honey therapy with the same dosage and frequency. After 3 days of intervention, the patient showed improvement, with defecation frequency decreasing from 7 to 1 episode per day and stool consistency changing from liquid to soft. Additionally, there was a noted reduction in the patient's dehydration level.

Discussion

In this case study, the author focused on a single patient who presented with diarrhea, a condition typically characterized by symptoms such as abdominal pain and loose stools occurring more than three times a day. Diarrhea can lead to dehydration and electrolyte imbalances, making timely and effective management crucial (Andrews et al., 2017). The patient initially exhibited seven episodes of defecation on the first day, with stool consistency described as liquid. This high frequency of bowel movements is not only uncomfortable but can also significantly impact the patient's quality of life. Understanding the underlying causes and implementing appropriate interventions is essential for alleviating symptoms and promoting recovery. After the initial assessment, the author decided to administer honey

as a therapeutic intervention, given its potential health benefits. Honey has been recognized for its natural anti-inflammatory and antibacterial properties, which may help soothe the gastrointestinal tract and reduce the frequency of bowel movements (Samarghandian, Farkhondeh, & Samini, 2017). On the second day of treatment, patient's condition showed notable improvement, as the frequency of defecation decreased to four times, with the stool consistency shifting from liquid to a mixture of liquid and some solid particles. This change indicates a positive response to the honey therapy, suggesting that it may have contributed to the stabilization of the patient's gastrointestinal function. The reduction in the number of bowel movements is a promising sign, indicating that the treatment was beginning to take effect.

In the third day of treatment, patient experienced further improvement, with only one episode of defecation and a stool consistency described as soft. This significant reduction in the frequency of defecation highlights the effectiveness of honey as a therapeutic agent in managing diarrhea. The patient's progress not only alleviated the immediate discomfort associated with frequent bowel movements but also reduced the risk of dehydration and other complications related to diarrhea. Overall, this case study underscores the potential role of honey in gastrointestinal health, particularly in reducing the frequency of defecation in patients suffering from diarrhea. Further research could explore the mechanisms behind honey's effectiveness and its application in broader clinical settings for managing similar cases. Research also supports these findings, showing that after administering 5 ml of honey three times a day for five days, there was a notable improvement in stool consistency, becoming firmer, and a quicker reduction in the frequency of diarrhea (Indriani, Hanum, & Yanti, 2022). Similarly, a study demonstrated that honey therapy effectively decreased the frequency of defecation among 10 respondents, particularly in children aged 0-2 years who were experiencing diarrhea (Simarmata et al., 2021).

This evidence suggests that honey therapy can be beneficial in managing diarrhea by reducing stool frequency and improving stool consistency. Nurses play a crucial role in managing diarrhea through the administration of honey as a complementary therapy. They are responsible for assessing the patient's condition, including the frequency and consistency of stools, and identifying any signs of dehydration or electrolyte imbalance. With educating patients and their families about the potential benefits of honey, nurses can promote its use as a natural remedy to soothe the gastrointestinal tract and reduce stool frequency. Additionally, nurses monitor the patient's response to honey therapy, documenting any changes in symptoms and providing ongoing support and guidance on dietary modifications and hydration strategies. Their holistic approach ensures that patients receive comprehensive care, addressing both the physical and emotional aspects of diarrhea management.

Conclusion

The study demonstrated that this approach can effectively reduce anxiety in patients, leading to lower blood sugar levels. This therapy can be particularly beneficial for patients experiencing anxiety, helping them feel more relaxed and better able to accept their chronic condition, such as diabetes mellitus. Additionally, hypnotherapy serves as a valuable non-pharmacological treatment option for individuals with diabetes. Patients are encouraged to utilize hypnotherapy as a therapeutic method to manage anxiety, enabling them to live more peacefully without being overwhelmed by fear or stress. For nurses, it is essential to conduct thorough assessments, accurately determine diagnoses, and incorporate hypnotherapy techniques as part of nursing interventions. Ensuring the effectiveness of these techniques can significantly help in managing patient anxiety. Hospitals are encouraged to consider hypnotherapy as a reference for health workers, enabling them to implement this therapy and enhance the overall health outcomes for their patients.

References

- Andayani, R. P., Nurhaeni, N., & Agustini, N. (2019). The Effect of Honey with ORS and a Honey Solution in ORS on Reducing the Frequency of Diarrhea and Length of Stay for Toddlers. *Comprehensive child and adolescent nursing*, 42(sup1), 21–28. <https://doi.org/10.1080/24694193.2019.1577922>
- Andrews, J. R., Leung, D. T., Ahmed, S., Malek, M. A., Ahmed, D., Begum, Y. A., Qadri, F., Ahmed, T., Faruque, A. S. G., & Nelson, E. J. (2017). Determinants of severe dehydration from diarrheal disease at hospital presentation: Evidence from 22 years of admissions in Bangladesh. *PLoS neglected tropical diseases*, 11(4), e0005512. <https://doi.org/10.1371/journal.pntd.0005512>
- Aranda-Michel, J., & Giannella, R. A. (1999). Acute diarrhea: a practical review. *The American journal of medicine*, 106(6), 670–676. [https://doi.org/10.1016/s0002-9343\(99\)00128-x](https://doi.org/10.1016/s0002-9343(99)00128-x)
- Birhan, T. A., Bitew, B. D., Dagne, H., Amare, D. E., Azanaw, J., Genet, M., Engdaw, G. T., Tesfaye, A. H., Yirdaw, G., & Maru, T. (2023). Prevalence of diarrheal disease and associated factors among under-five children in flood-prone settlements of Northwest Ethiopia: A cross-sectional community-based study. *Frontiers in pediatrics*, 11, 1056129. <https://doi.org/10.3389/fped.2023.1056129>
- Drancourt M. (2017). Acute Diarrhea. *Infectious Diseases*, 335–340.e2. <https://doi.org/10.1016/B978-0-7020-6285-8.00038-1>

- Gore, J. I., & Surawicz, C. (2003). Severe acute diarrhea. *Gastroenterology clinics of North America*, 32(4), 1249–1267. [https://doi.org/10.1016/s0889-8553\(03\)00100-6](https://doi.org/10.1016/s0889-8553(03)00100-6)
- Indriani, Y. N., Hanum NA, F., & Yanti. L. (2022). Formula Madu Untuk Mengatasi Diare Pada Balita Di Puskesmas Wanadadi 1 Banjarnegara: Studi Kasus. *Indonesian Health Science Journal*, 2(2). <https://doi.org/10.52298/ihsj.v2i2.26>
- Islam, M. R., Islam, M. R., Anisuzzaman, M., & Hossain, S. J. (2019). Antidiarrheal, Analgesic, and Anthelmintic Activities of Honeys in the Sundarbans Mangrove Forest, Bangladesh. *Preventive nutrition and food science*, 24(1), 49–55. <https://doi.org/10.3746/pnf.2019.24.1.49>
- Koletzko, S., & Osterrieder, S. (2009). Acute infectious diarrhea in children. *Deutsches Arzteblatt international*, 106(33), 539–548. <https://doi.org/10.3238/arztebl.2009.0539>
- Mahyar, A., Ayazi, P., Shaftaroni, M. R., Oveisi, S., Dalirani, R., & Esmaeili, S. (2022). The Effect of Adding Honey to Zinc in the Treatment of Diarrhea in Children. *Korean journal of family medicine*, 43(3), 188–192. <https://doi.org/10.4082/kjfm.21.0080>
- Mandal, M. D., & Mandal, S. (2011). Honey: its medicinal property and antibacterial activity. *Asian Pacific journal of tropical biomedicine*, 1(2), 154–160. [https://doi.org/10.1016/S2221-1691\(11\)60016-6](https://doi.org/10.1016/S2221-1691(11)60016-6)
- Olas B. (2020). Honey and Its Phenolic Compounds as an Effective Natural Medicine for Cardiovascular Diseases in Humans?. *Nutrients*, 12(2), 283. <https://doi.org/10.3390/nu12020283>
- Samarghandian, S., Farkhondeh, T., & Samini, F. (2017). Honey and Health: A Review of Recent Clinical Research. *Pharmacognosy research*, 9(2), 121–127. <https://doi.org/10.4103/0974-8490.204647>
- Simarmata, J. M., Ani, P., Astuti, D., S., S., Tarigan, B. S., Ginting, S., Ginting, R., & Siregar, W. W. (2021). Pengaruh Terapi Madu Terhadap Penurunan Frekuensi Buang Air Besar Pada Anak Usia 0-2 Tahun Yang Mengalami Diare Di Rumah Sakit Umum Daerah Deli Serdang Lubuk Pakam Tahun 2020. *Jurnal Pengmas Kestra (Jpk)*, 1(1), 147–152.
- Skrable, K., Bilal, S., Sharma, R., Robertson, S., Ashenafi, Y., Nasrin, S., Alam, N. H., & Levine, A. C. (2017). The Effects of Malnutrition and Diarrhea Type on the Accuracy of Clinical Signs of Dehydration in Children under Five: A Prospective Cohort Study in Bangladesh. *The American journal of tropical medicine and hygiene*, 97(5), 1345–1354. <https://doi.org/10.4269/ajtmh.17-0277>
- Vahdat Shariatpanahi, Z., Jamshidi, F., Nasrollahzadeh, J., Amiri, Z., & Teymourian, H. (2018). Effect of Honey on Diarrhea and Fecal Microbiota in Critically Ill Tube-Fed Patients: A Single Center Randomized Controlled Study. *Anesthesiology and pain medicine*, 8(1), e62889. <https://doi.org/10.5812/aapm.62889>