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COMMENT

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Antenatal colostrum expression: are we interfering with nature?

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Abstract

Background Antenatal colostrum expression refers to the practice of hand-expressing and storing breast milk during the final weeks of pregnancy, usually beginning around 36 weeks of gestation. Initially introduced to provide an immediate supply of colostrum for newborns at risk of hypoglycemia, particularly those born to mothers with diabetes, it was also intended to reduce reliance on commercial milk formula. Over time, the practice has gained significant international visibility through clinical recommendations, maternal testimonials, and social media promotion. As a result, antenatal colostrum expression is now being extended to low-risk pregnancies despite limited population-level evidence supporting its universal application. Implications of widespread adoption: Evidence from randomized controlled trials has shown that antenatal colostrum expression is safe for women with diabetes in pregnancy and does not increase rates of preterm birth. However, these studies did not find measurable improvements in breastfeeding initiation, exclusivity, or long-term breastfeeding outcomes when compared to standard care. Reports from mothers highlight additional concerns, including prenatal mastitis, anxiety about milk supply, and pressure to collect excessive amounts of colostrum without professional supervision. For infants, the use of stored colostrum immediately after birth may contribute to overfeeding, a poor latch, and early reliance on supplemental milk. Beyond clinical outcomes, the growing commercialization of this practice risks presenting it as a maternal obligation rather than a carefully targeted intervention for selected situations.

Conclusion Antenatal colostrum expression may provide benefits for certain high-risk pregnancies, particularly when neonatal hypoglycemia is anticipated, but current evidence does not support its routine use for all women. Its adoption should remain guided by clinician judgment and individualized prenatal counseling rather than being promoted as a universal recommendation. Until larger, well-designed studies confirm both safety and measurable improvements in breastfeeding outcomes, this practice should be considered a supportive tool for specific populations rather than a standard component of prenatal care.

Keywords Antenatal colostrum expression, Breastfeeding, Lactation counseling, Type 1 diabetes, DAME trial

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Background

Antenatal colostrum expression (ACE) is the practice of hand-expressing and collecting small amounts of colostrum during the final weeks of pregnancy, typically beginning around 36 weeks of gestation [1]. Initially introduced to provide an immediate supply of colostrum for newborns at risk of hypoglycemia, particularly those born to mothers with diabetes, it was also intended to reduce reliance on commercial milk formula [2–5]. In recent years, practice has expanded beyond its initial high-risk context. ACE is increasingly promoted through online platforms, prenatal classes, and social media influencers, contributing to its widespread recognition among expectant mothers worldwide. Despite its popularity, there is limited robust evidence to support routine ACE for the general obstetric population. Clinical trials, such as the Diabetes and Antenatal Milk Expressing (DAME) trial conducted in Australia and the Express-MOM study in Denmark, have demonstrated that ACE is safe for low-risk women with diabetes in pregnancy and does not increase the risk of preterm birth [2, 3]. However, findings also indicate no significant improvement in breastfeeding duration or exclusivity compared to standard care [1–4]. Collectively, the evidence does not support a routine recommendation: interviews with women reveal mixed experiences, the timing of lactogenesis II remains unchanged, and breastfeeding outcomes at three months do not differ from those in standard care [2, 5, 6].

Clinical observations reveal concerns for both mothers and infants. Mothers encounter several risks, including prenatal mastitis, discomfort, anxiety regarding milk supply, and social pressure to collect excessive colostrum, often stemming from unsupervised antenatal expression practices. For infants, introducing stored colostrum immediately after birth can lead to overfeeding, decreased interest in breastfeeding, poor latch, and increased dependence on commercial milk formula when the pre-expressed colostrum is depleted. Furthermore, the growing commercialization of ACE through the sale of kits and promotional campaigns risks framing it as a maternal obligation rather than a clinically indicated intervention [7, 8].

Reports from qualitative studies illustrate a spectrum of maternal experiences with antenatal colostrum expression [3, 9, 10]. Some mothers described enhanced breastfeeding confidence, a sense of preparedness, and security from having stored colostrum [3, 10]. Other mothers recounted challenges such as embarrassment expressing milk, physical discomfort, anxiety when little or no colostrum was obtained, disappointment, and fears of unintended consequences for early lactation [9, 11]. These diverse accounts underscore that maternal responses to antenatal expression are highly individual and may include both perceived benefits and stressors. Given these mixed outcomes and the lack of population-level evidence on safety and efficacy, international experts recommend limiting ACE to individualized, clinician-guided contexts rather than universal prenatal implementation [1, 2].

Discussion

Colostrum is rich in bioactive compounds essential for the development of neonatal immunity and gut health [1, 12]. Produced in small but sufficient volumes, it transitions to mature milk within days postpartum [1]. Direct breastfeeding supports the infant's microbiome and promotes effective latch and supply-demand regulation [12, 13].

Based on my clinical observations and recent practice experience, antenatal expression, sometimes yielding 10 to 30 mL or more, can create unrealistic expectations for milk volume in the early postpartum period. When postpartum supply does not match these expectations, families may introduce commercial milk formula or begin early pumping. Feeding antenatally expressed colostrum during the first night postpartum, particularly with early hospital discharges, can complicate lactation support. Infants may become less interested in latching, leading to missed opportunities for direct observation and intervention.

In recent months, I have observed several cases that underscore the potential unintended consequences of ACE when practiced without appropriate clinical oversight. These included two cases of mastitis, three early term babies born around 37 weeks' gestation, one of which was small for gestational age (SGA) and required 24-hour blood glucose assessments, and one case of hyperlactation [14].

I encountered a patient at my hospital who had expressed and stored 70 mL of colostrum antenatally. By the time, the infant was ready to be discharged from the hospital, the full volume of milk had been given, yet the baby still struggled to establish a proper latch. On postpartum day four, the mother contacted me in distress, reporting that her infant was crying at the breast and unable to feed effectively. Tearfully, she expressed concerns that her baby was supposed to have more volume than she was currently producing. This mother's observation accurately reflected the disruption in early breastfeeding dynamics that can occur when feeding expectations, shaped by antenatal expression, are misaligned with normal lactation physiology.

Additionally, I managed a case in which a patient developed mastitis during pregnancy after following advice from a social media influencer to aggressively stimulate milk production antenatally. She presented with breast pain, swelling, and fever, and was subsequently diagnosed with mastitis. This case illustrates the potential

for adverse outcomes when unregulated ACE practices, particularly those promoted through non-clinical online sources, are adopted without individualized assessment or professional guidance.

Colostrum's efficacy is highest when freshly expressed [12, 13]. Freezing and thawing may reduce immunoglobulin activity and alter beneficial microbiota [12, 13, 15]. What are the physiologic and clinical implications of substituting frozen–thawed antenatal colostrum for direct breastfeeding during the early gut-priming window? Frozen storage and thawing can diminish the activity of select immune factors and reduce viable cellular and microbial constituents, potentially attenuating mucosal signaling and early colonization [12, 13]. In contrast, feeding at the breast supports bidirectional maternal–infant microbial exchange and oropharyngeal exposure that stored milk cannot fully replicate [12].

While the Express-MOM trial concluded that ACE is safe for low-risk pregnancies, the limited sample size and exclusion of high-risk groups restrict its generalizability [3]. Additionally, the Express-MOM pilot trial used gestational age at delivery as its primary safety endpoint and found no between-group difference; it did not predefine or report early-term (37 0/7–38 6/7 weeks) births as a distinct outcome [3, 14].

The commercialization of ACE has become increasingly significant. A growing number of companies now offer specialized kits, pre-labeled syringes, freezer packs, and instructional tools marketed as essential for expectant mothers [7, 8]. These products are often promoted online through social media campaigns and parenting websites as indicators of 'responsible' or 'prepared' motherhood. Such marketing strategies may inadvertently monetize parental anxiety and subtly influence both maternal decision-making and clinical recommendations. From a clinical standpoint, this commercialization can shift focus from individualized, evidence-based breastfeeding support toward a consumer-driven model that prioritizes product use over natural lactation practices. To mitigate this effect, healthcare providers must remain vigilant in separating commercial pressures from clinical guidance, ensuring that recommendations for ACE are grounded solely in scientific evidence and patient-centered care.

My initial support for ACE was deeply rooted in my personal journey as the parent of a child diagnosed with Type 1 diabetes. I first encountered the concept at an International Lactation Consultant Association (ILCA) conference, where it was presented as a promising intervention for mothers with diabetes in pregnancy. Motivated by both my lived experience and professional role, I became a strong advocate for its integration into clinical care—particularly for women with Type 1 diabetes over the past 17 years.

However, as my clinical experience broadened, my perspective has evolved. I have seen firsthand that while ACE can offer meaningful benefits in specific, high-risk contexts, its generalized promotion carries unintended consequences. The practice has expanded far beyond its original intent, at times overshadowing the art, physiology, and instinctual nature of breastfeeding. In some settings, the marketing and routine recommendation of ACE risk medicalizes an inherently natural process, creating pressure on mothers and inadvertently altering early lactation experiences.

I continue to believe that ACE has a place in supporting mothers with Type 1 diabetes, provided it is implemented selectively, guided by evidence, and accompanied by comprehensive counseling. Yet, I caution against its widespread promotion. As healthcare professionals, we must remain vigilant not to disrupt the delicate balance between interventions and ensure that, in our enthusiasm to offer solutions, we do not diminish the art of breastfeeding.

Conclusion

We must re-evaluate unnecessary interventions in infant feeding practices. In the United States, many mothers increasingly opt for pumping due to social trends and commercialization. In contrast, anecdotally, European countries often maintain direct breastfeeding as the default approach. Reducing unnecessary interventions and reinforcing breastfeeding as a natural, uncomplicated process will better support maternal and infant health. Evidence-based practices, such as skin-to-skin contact, rooming-in, and early breastfeeding initiation, are essential for establishing lactation [16]. ACE remains a promising tool in selected high-risk cases, but its indiscriminate application risks undermining breastfeeding success. Until larger population studies confirm safety and efficacy, ACE should be reserved for individualized, clinician-guided prenatal care.

Abbreviations

ACE Antenatal colostrum expression
SGA Small for gestational age
ILCA International Lactation Consultant Association

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