Clinical Trial Summary

Randomized Trial Comparing the Efficacy of a Novel Manual Breast Pump With a Standard Electric Breast Pump in Mothers Who Delivered Preterm Infants

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"Our study is the first in which [a physiologic-designed] MP has been shown to be superior to [a suction-only] EP when compared on equal terms."

"These findings suggest that the principles used to design the MP are reflected by measurable changes in the physiology of milk expression."

Introduction.

The benefits of human milk for preterm infants are widely recognized and mothers are strongly encouraged to provide their own breast milk for their preterm infant.

Objective.

Infants born before 24 weeks' gestation usually are too immature to breastfeed; the mother must express her milk, either manually or with the use of a breast pump, possibly for weeks or even months. However, technological advances in milk expression have been slow, and many mothers find expressing breast milk difficult or unpleasant. This study compared:

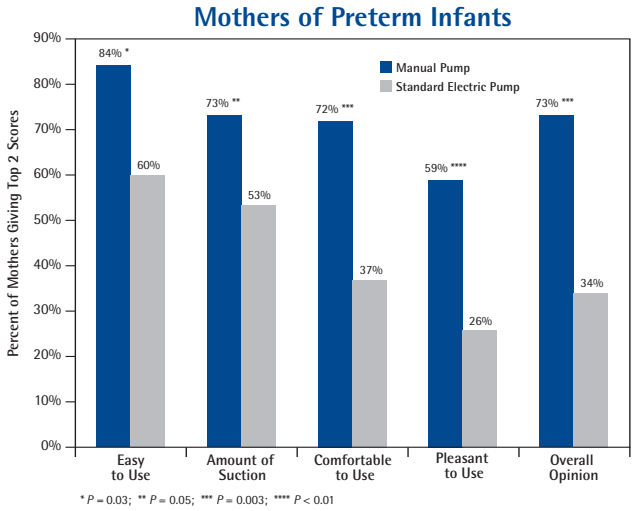
- A standard electric pump (EP; Egnell), which operates simply by suction; and
- A novel manual pump (MP; Avent ISIS) designed to operate more physiologically by simulating the infant's compressive action on the areola during breastfeeding.

Subjects.

145 women who delivered infants of <35 weeks' gestation were recruited within 3 days of delivery and randomized to use the physiologic-designed MP or the suction-only EP.

Results

- Mothers who used the EP who frequently double-pumped showed shorter expression times but produced no more milk than mothers who used the MP.
- When mothers who used the MP were compared with mothers who used the EP and double pumped exclusively, the calculated milk output per breast per minute for the whole study was higher in the MP group.
- At a mean of 11 days postpartum and single pumping:
  - Mothers using the physiologic-designed MP showed a greater volume of milk expressed at each measurement time point and significantly greater total volume over 20 minutes ($P = 0.04$).
  - Mothers who were using the MP took significantly less time to express a given volume of milk than mothers using the EP.
  - Creamatocrit values were unaffected by pump type.
- Mothers showed a clear preference for the physiologic-designed MP over the suction-only EP, rating it significantly higher overall on each of the individual characteristics.



Conclusions

When compared on equal terms (single pumping), mothers using the physiologic-designed MP showed greater milk flow and produced more milk in a fixed time period, compared with the suction-only EP.

The novel, effective physiologic-designed MP reflects a significant advance in milk expression for high-risk infants.