

Comparison of electric breast pump and inverted syringe technique to see the effect on breastfeeding in lactating women with nipple inversion

Submission date 12/08/2024	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered
		<input type="checkbox"/> Protocol
Registration date 13/08/2024	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
Last Edited 11/09/2024	Condition category Pregnancy and Childbirth	<input type="checkbox"/> Individual participant data

Plain English summary of protocol

Background and study aims

Breastfeeding is ideal nutrition for all newborns. However, the success of breastfeeding often depends on a lot of factors, one of which is proper attachment to the mother's breast. Mothers with inverted or flat nipples often face a lot of difficulties in breastfeeding their newborns. An inverted nipple is a common developmental anomaly, with an estimated prevalence of 10%. The inverted syringe is the least expensive technique to correct inverted nipples, however, this method is also painful. Breast pumps are electronic devices that are used for expression of breast milk. Breast pump suction is very similar to the sucking and feeding of healthy infants. As the breast pump mimics the suckling pattern of the newborn, it can also cause eversion and elongation of inverted nipples. It is hypothesized that the usage of an electric breast pump is a less painful and more effective way of establishing breastfeeding in these mothers. This study aims to compare the success of breastfeeding with the help of the inverted syringe technique versus the success of breastfeeding with the help of an electric breast pump in mothers with inverted or flat nipples. The study will also look at the scale of pain expressed by a mother while using a breast pump versus pain expressed by a mother while using a syringe.

Who can participate?

Women with inverted or flat nipples of term neonates born at All India Institute of Medical Sciences Patna

What does the study involve?

This is an open-labelled randomly allocated and controlled trial that will be conducted by the Department of Neonatology at AIIMS PATNA. Participants will be allocated into two groups 1:1 using a computer. Group A will be instructed to use a cut disposable 10ml syringe to evert their nipples before each feed. After that mothers are instructed to latch the baby on the breast and feed for 10-20 minutes on either breast. Group B will be instructed to use the Medela Symphony electric breast pump for hospital use, on each breast for 15-20 minutes before each feed. After that mothers are instructed to latch the baby on the breast and feed for 10-20 minutes on either

breast. This procedure will be done after each feed and for a total of 3 days or after the achievement of successful lactation with an everted nipple, whichever is earlier. The rate of successful latching and attachment with satisfactory breastfeeding will be checked on day 3 of the postnatal period. Using a visual analog pain scale, mothers will be asked to document the degree of pain felt with syringing and while using the breast pump. This recording will be done once a day and the maximum amount of pain experienced during syringing will be compared in both groups.

What are the possible benefits and risks of participating?

This study was done to help understand which mode of intervention, inverted syringe or breast pump is more successful in establishing breastfeeding in lactating mothers with inverted nipples, with the least amount of pain.

Where is the study run from?

All India Institute of Medical Sciences Patna, India

When is the study starting and how long is it expected to run for?

September 2022 to September 2023

Who is funding the study?

Investigator initiated and funded

Who is the main contact?

Dr Bhabesh Kant Chowdhary (Principal Investigator), drbhabeshkc@aiimspatna.org

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Additional identifiers**Clinical Trials Information System (CTIS)**

Nil known

ClinicalTrials.gov (NCT)

Nil known

Protocol serial number

AIIMS/Pat/IEC/2022/956

Study information**Scientific Title**

Breastfeeding success with use of electric breast pump versus inverted syringe technique in lactating women with inverted or flat nipple: Open Labelled Randomized Control Trial

Study objectives

Electric breast pump suction provides a more physiological correction of the inverted nipple in lactating mothers compared to the syringing technique which leads to better breastfeeding rates with less nipple pain.

Ethics approval required

Ethics approval required

Ethics approval(s)

approved 11/10/2022, IEC AllMS Patna (Institute Ethics Committee All India Institute of Medical Sciences Patna) (Phulwari Sharif, Patna, 801507, India; +916122821105; researchdivision@aiimspatna.org), ref: AIIMS/Pat/IEC/2022/956

Study design

Single-center interventional parallel-group open-label randomized controlled trial

Primary study design

Interventional

Study type(s)

Treatment, Safety, Efficacy

Health condition(s) or problem(s) studied

Exclusive breastfeeding in lactating mothers with inverted nipples

Interventions

This study is a single-center, Interventional, parallel-group, open-label randomized controlled trial with allocation concealment performed using sequentially numbered opaque sealed envelopes and randomization computer-generated with variable block sizes with a 1:1 allocation ratio.

Participants were lactating mothers with inverted nipples in whom two different methods (Syringing vs. Electric Breast Pump) were tried to achieve eversion and establishment of exclusive breastfeeding by day 3 of the postnatal period.

The participants were randomized into 2 parallel intervention groups (Group A and Group B) in a 1:1 ratio. Mothers allocated to Group A were instructed to use a cut disposable 10 mL syringe to evert their nipple before each feed. Mothers were shown how to place the cut syringe over their nipple and gently pull till the nipple was everted, maintaining it for one minute, after which the syringe was removed and breastfeeding started. They were asked to feed for a minimum duration of 20 minutes.

Mothers allocated to Group B were instructed to apply the Medela Symphony electric breast pump (which was made available in their respective post-natal ward) to their breasts for 15 minutes or longer if eversion was not yet achieved. Following this they were instructed to latch the baby on breast and feed for at least 20 minutes.

Intervention Type

Device

Phase

Not Applicable

Drug/device/biological/vaccine name(s)

Electric breast pump, inverted syringe

Primary outcome(s)

Establishment of direct breastfeeding by day 3 postpartum period without the need for continued intervention to evert the nipple measured using a categorical variable (Yes/No) by day 3 postnatal period

Key secondary outcome(s)

Pain in the nipple experienced by the mother after using the assigned intervention measured using a Visual Analog Scale (VAS) on days 1, 2, and 3 of the postnatal period

Completion date

30/09/2023

Eligibility

Key inclusion criteria

Lactating mothers with inverted nipples of term neonates born at All India Institute of Medical Sciences Patna with APGAR >7 at birth.

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Mixed

Sex

Female

Total final enrolment

60

Key exclusion criteria

1. Breast cancer or on cytotoxic/chemotherapy drugs
2. Requiring admission to the intensive care unit (ICU) within 24 hours of delivery
3. Mothers of neonates requiring NICU admission within 24 hours of birth
4. Mothers of neonates who have oro-pharyngeal abnormalities like cleft lip/palate

Date of first enrolment

15/10/2022

Date of final enrolment

30/09/2023

Locations**Countries of recruitment**

India

Study participating centre

All India Institute of Medical Sciences Patna (AIIMS Patna)

Phulwari Sharif

Patna

India

801507

Sponsor information**Organisation**

Funder(s)

Funder type

Other

Funder Name

Investigator initiated and funded

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated and/or analysed during the current study will be available upon request from Dr Bhabesh Kant Chowdhary, drbhabeshkc@aiimspatna.org.

The type of data available is in .dta format (STATA). These data will be available once the study is published in a peer-reviewed journal. Consent from participants was required and obtained. Data will be in a de-identified format, after removing names, and registration numbers. There are no ethical restrictions.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		29/08/2024	11/09/2024	Yes	No
Basic results			11/09/2024	No	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes