Title: Electromyographic analysis of masseter in newborns during suction in breast, bottle or cup feeding

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Reviewer: Kerstin H Nyqvist

Reviewer's report:

Review of: Electromyographic analysis of masseter in newborns during suction in breast, bottle or cup feeding.

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Is the question posed by the authors well defined?

The question is well defined. However, a perspective that is not mentioned is that it addresses a topic that is the object of a current controversy among health care professionals: Which oral feeding method should be preferred as for supplementation in addition to breastfeeding for medical reasons, in healthy term infants, as well as infants that require neonatal intensive care because of prematurity and/or illness? Therefore, it is not satisfactory that the focus of article is limited to the perspective of speech.

The question should be placed in the context where it is the topic of an international controversy. The WHO policy for breastfeeding is mentioned. However, the related WHO/UNICEF guideline, the Baby Friendly Hospital Initiative (BFHI) with 10 Steps to Successful Breastfeeding is not mentioned; this document explicitly states bottle-feeding of infants with a mother who intends to breastfeed should be not be used, at least during the establishment of breastfeeding. A revised and expanded version of this document was published in 2009, for worldwide application, in all types of settings.

Furthermore, although research has consistently found higher breastfeeding rates at discharge among babies who received supplemental feedings in hospital by cup, compared to bottle, the use of cup-feeding for of healthy term infants has been questioned. This is due to conflicting opinions about perceived differences and similarities in muscle activity between breast, bottle and cup-feeding. There is a Cochrane review that does not support cup-feeding (based mainly on one study with seriously flaws because of lack of adherence to randomization). These issues should also be described here, with relevant references, to adequately cover the topic.

The last sentence in the background does not mention the contribution of other feeding methods – versus bottle feeding - to support of mothers’ establishment and continuation of breastfeeding, which has effects on infants’ health and
mother’s health.

Are the methods appropriate and well described?

In page 4, the use of EMG is described. However, the authors do not mention that it has also been used to describe sucking patterns in preterm infants – although they use the related reference (10) earlier in the Background.

A serious lack is the description of the participants: one EMG measurement per infant was made. But data are lacking regarding the infants’ experience of feeding methods before that feeding. Had all infants been breastfed initially? Had they been exposed to cup feeding before the EMG measurement? Could this have affected the oral motor behaviour studied with EMG? This should be described, and discussed.

In the description of the participants, table 1, the variable ‘age’ should be revised to describe not only postnatal age (PNA) but also postmenstrual age (PMA, corresponding to gestational age after birth).

The data collection method, procedure and analysis are appropriate for the aim. In- and exclusion criteria for study infants are clearly stated, and the sample size was determined after calculation of power. The electromyography (EMG) measurement technique and procedure are described in detail, as well as the data analysis.

Are the data sound?

The EMG data are described in detail, and can be sufficiently understood also by professionals that are not speech therapists.

Does the manuscript adhere to relevant standards for reporting and data deposition?

The study is reported and structured in a scientifically appropriate way (with the exception of what is mentioned under Background).

Are limitations of the study clearly stated?

As stated above, information is lacking about the infants’ previous experience of feeding methods.

Do the authors clearly acknowledge any work upon which they are building?

The authors give an adequate presentation of research of oral motor activities involved in breast, cup and bottle-feeding.

Do the title and abstract accurately convey what has been found?

Title: I am not sure whether the term ‘masseter’ alone is sufficient – should the word ‘muscle’ be added? Abstract: The description of the participants should be revised as suggested above, and the conclusion improved.

Discretionary revisions
Minor essential revisions

- It would be more informative if the data are presented as mean and range instead of mean (SD). In Table 1, labels should indicate Median (range), the preferred date – or Mean (SD).
- In the Background, a statement about the use of EMG in research about preterm infants should be added.

Major compulsory revisions

- The clinical context in which the study will have important clinical implications should be described (see above).
- Studies that compared effects of cup versus bottle feeding on breastfeeding at discharge should be described. Thus, a summary of the controversy regarding use of cup- and bottle-feeding should be added in the Background, Discussion and Conclusion, as this will attract the attention of readers involved in lactation and breastfeeding support.
- Additional effects (not mentioned) on infants of avoidance of bottle feeding should be added – as this may lead to lower extent of - or no - breastfeeding.
- In table 1: data for both postnatal and postmenstrual age of the participating infants should be added.
- In the discussion and conclusions, the authors’ opinion/thoughts about which alternative oral feeding method should be preferred is lacking. Merely describing the EMG results does not explain how the results should be interpreted.
- Participants: Clarify that there were 27 newborns per group.
- Discussion: The authors’ evaluation of the use of cup versus bottle for supplementation is not described. The data could be interpreted as indicating that cup-feeding is somewhat more similar to breastfeeding – masseter activity levels between breast and bottle. These findings should be discussed related to the clinical controversy regarding cup feeding, and the WHO recommendations for promoting breastfeeding, and a related conclusion added.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

No conflicts of interests to declare.