



Outcome measures in studies on the use of oxytocin for the treatment of delay in labour: A systematic review



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ABSTRACT

Objectives: to identify primary and secondary outcome measures in randomised trials, and systematic reviews of randomised trials, measuring effectiveness of oxytocin for treatment of delay in the first and second stages of labour, and to identify any positive health-focussed outcomes used.

Design: eight relevant citation databases were searched up to January 2013 for all randomised trials, and systematic reviews of randomised trials, measuring effectiveness of oxytocin for treatment of delay in labour. Trials of active management of labour or partogram action lines were excluded. 1918 citations were identified. Two reviewers reviewed all citations and extracted data. Twenty-six individual trials and five systematic reviews were included. Primary and secondary outcome measures were documented and analysed using frequency distributions.

Findings: most frequent primary outcomes were caesarean section ($n=15$, 46%), length of labour ($n=14$, 42%), measurements of uterine activity ($n=13$, 39%) and mode of vaginal birth ($n=9$, 27%). Maternal satisfaction was identified *a priori* by one review and included as a secondary outcome by three papers. No further positive health-focussed outcomes were identified.

Key conclusions: outcomes used to measure the effectiveness of oxytocin for treatment of delay in labour are heterogeneous and tend to focus on adverse events.

Implications for practice: it is recommended that, in future randomised trials of oxytocin use for delay in labour, some women-centred and health-focussed outcome measures should be used, which may instil a more salutogenic culture in childbirth.

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Contents

Introduction.....	976
Methods.....	976
Eligibility criteria.....	977
Data collection and analysis.....	977
Findings.....	977
Description of included original studies.....	977

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Demographic characteristics	977
Outcome measures	980
Primary outcome measures	980
Secondary outcome measures	980
Summative view on outcome measures	980
Discussion	980
Strengths and limitations	980
Main findings	980
Conclusion	981
Conflict of interest	981
Authors' contributions	981
Details of ethics approval	981
Funding	981
Acknowledgements	981
References	981

Introduction

Labour duration has shown a wide variation in different women (Albers, 1999; Vahratian et al., 2006; Neal et al., 2010), and slow labour progress is common in nulliparous women. It is associated with childbirth complications, concerns for fetal well-being, and negative birth experiences (Waldenström et al., 2004), and is one of the main indications for unplanned caesarean section in labour (Bugg et al., 2006; Florica et al., 2006).

Some evidence indicates that early oxytocin administration is associated with an increase in spontaneous vaginal birth (Wei et al., 2009) but others conclude that oxytocin does not affect delivery mode (Bugg et al., 2013). Likewise, there is no consensus regarding doses of oxytocin (Xenakis et al., 1995; Oscarsson et al., 2006; Hayes and Weinstein, 2008). Systematic reviews of high versus low dose oxytocin for augmentation of delayed labour report shorter labour duration and an increase in spontaneous vaginal birth associated with high doses (Wei et al., 2010; Mori et al., 2011) but there are few studies and, overall, the evidence is scarce (Mori et al., 2011). This would appear to indicate that further research should be conducted, and therefore the outcome measures chosen should receive some attention.

Healthy outcomes and positive experiences are core issues for women in childbirth, yet the majority of outcome measures used in research are focussed on physical aspects only and refer to adverse outcomes (for example, pain requiring analgesia, admission to Special Care Baby Unit (SCBU), mortality). There is a need for inclusion of positive health-focussed outcome measures using a salutogenic approach. Salutogenesis concentrates on health and how it can be promoted, rather than focussing on illness and how it can be cured (Day-Stirk and Palmer, 2003), which is in congruence with the philosophy of childbirth that views pregnancy as a normal physiological event, not an illness. Smith et al. (2014), in a systematic review of 102 systematic reviews of maternity care, identified 16 categories of outcomes that could be called 'salutogenic'; these included mobility during labour, comfort, spontaneous rupture of membranes, intact perineum, well-being, and positive relationship with infant. Focussing on such outcomes may encourage clinicians to try to increase their incidence, thus improving care for mothers and infants.

Some positive outcomes are expected from oxytocin (e.g. shorter labour duration, spontaneous vaginal birth), but it is acknowledged as not only a powerful and effective drug (Clark et al., 2009; Rooks, 2009) but also one that is associated with adverse neonatal outcome and operative delivery (Bugg et al., 2006; Oscarsson et al., 2006). There is little evidence on the general impact of oxytocin during delay of labour, except that it shortens labour (Wei et al., 2009; Bugg et al., 2013; Mori et al., 2011). A good maternal and fetal outcome is the overall aim for

each labour and birth. However, comparisons between studies are challenging due to inconsistencies in choice, and definitions, of outcome variables, which indicates the need to develop a core set of outcomes (Devane et al., 2007). It remains unclear how, or if, the outcomes identified by Devane et al. (2007) (including maternal mortality, caesarean section rates, length of labour, analgesia, mode of vaginal birth, post partum haemorrhage, blood transfusion, Apgar scores, admission to SCBU, perinatal mortality or morbidity), and other more positive health-focussed outcomes, have been picked up in the light of the ongoing research on oxytocin during delay in labour.

This systematic review aims to identify primary and secondary outcome measures in randomised trials, and systematic reviews of randomised trials, measuring effectiveness of oxytocin for treatment of delay in the first and second stages of labour. The review will also identify any positive health-focussed outcome measures used in this field.

Methods

Two of the authors performed a systematic search in March 2011, which was updated in January 2013, using the following databases:

- Maternity and Infant Care (MIDIRS).
- Cochrane Database of Systematic Reviews (CDSR).
- Cochrane Central Register of Controlled Trials (CENTRAL).
- Medical Literature Analysis and Retrieval System Online (MEDLINE).
- The Cumulative Index to Nursing and Allied Health Literature (CINAHL).
- Excerpta Medica Database (EMBASE).
- Database of Abstracts of Reviews of Effects (DARES).
- Health Technology Assessment Database.

A detailed search strategy was developed and tested for each database, restricted to English language publications. Appropriate keywords were combined with the Boolean operands 'and' and 'or' as appropriate; for example, for a search in MEDLINE, 'delay OR delayed OR progress* OR augment* OR dystoc* OR slow OR arrested OR latent OR prolonged OR protracted OR active management OR partogram OR timing.' We also hand-searched the reference lists of all eligible studies for references to other possibly relevant studies. A flow diagram was produced (Fig. 1) to represent our search technique and results in accordance with the PRISMA statement (Liberati et al., 2009).

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