Background

Enthusiasts suggest that labouring in water and waterbirth increase maternal relaxation, reduce analgesia requirements and promote a midwifery model of care. Critics cite the risk of neonatal water inhalation and maternal/neonatal infection.

Objectives

To assess the evidence from randomised controlled trials about immersion in water during labour and waterbirth on maternal, fetal, neonatal and caregiver outcomes.

Search methods

We searched the Cochrane Pregnancy and Childbirth Group’s Trials Register (30 June 2011) and reference lists of retrieved studies.

Selection criteria

Randomised controlled trials comparing immersion in any bathtub/pool with no immersion, or other non-pharmacological forms of pain management during labour and/or birth, in women during labour who were considered to be at low risk of complications, as defined by the researchers.

Data collection and analysis

We assessed trial eligibility and quality and extracted data independently. One review author entered data and the other checked for accuracy.

Main results

This review includes 12 trials (3243 women): eight related to just the first stage of labour: one to early versus late immersion in the first stage of labour; two to the first and second stages; and another to the second stage only. We identified no trials evaluating different baths/pools, or the management of third stage of labour.

Results for the first stage of labour showed there was a significant reduction in the epidural/spinal/paracervical analgesia/anaesthesia rate amongst women allocated to water immersion compared to controls (478/1254 versus 529/1245; risk ratio (RR) 0.90; 95% confidence interval (CI) 0.82 to 0.99, six trials). There was also a reduction in duration of the first stage of labour (mean difference -32.4 minutes; 95% CI -58.7 to -6.13). There was no difference in assisted vaginal deliveries (RR 0.86; 95% CI 0.71 to 1.05, seven trials), caesarean...
sections (RR 1.21; 95% CI 0.87 to 1.68, eight trials), use of oxytocin infusion (RR 0.64; 95% CI 0.32 to 1.28, five trials), perineal trauma or maternal infection. There were no differences for Apgar score less than seven at five minutes (RR 1.58; 95% CI 0.63 to 3.93, five trials), neonatal unit admissions (RR 1.06; 95% CI 0.71 to 1.57, three trials), or neonatal infection rates (RR 2.00; 95% CI 0.50 to 7.94, five trials).

Of the three trials that compared water immersion during the second stage with no immersion, one trial showed a significantly higher level of satisfaction with the birth experience (RR 0.24; 95% CI 0.07 to 0.80).

A lack of data for some comparisons prevented robust conclusions. Further research is needed.

Authors' conclusions

Evidence suggests that water immersion during the first stage of labour reduces the use of epidural/spinal analgesia and duration of the first stage of labour. There is limited information for other outcomes related to water use during the first and second stages of labour, due to intervention and outcome variability. There is no evidence of increased adverse effects to the fetus/neonate or woman from labouring in water or waterbirth. However, the studies are very variable and considerable heterogeneity was detected for some outcomes. Further research is needed.

**PLAIN LANGUAGE SUMMARY**

**Immersion in water in labour and birth**

This review includes 12 trials (3243 women). Water immersion during the first stage of labour significantly reduced epidural/spinal analgesia requirements, without adversely affecting labour duration, operative delivery rates, or neonatal wellbeing. One trial showed that immersion in water during the second stage of labour increased women’s reported satisfaction with their birth experience. Further research is needed to assess the effect of immersion in water on neonatal and maternal morbidity. No trials could be located that assessed the immersion of women in water during the third stage of labour, or evaluating different types of pool/bath.

**BACKGROUND**

This review is one in a series of Cochrane reviews examining pain management in labour. These reviews contribute to an overview of systematic reviews of pain management for women in labour (Jones 2011a), and share a generic protocol (Jones 2011b).

Throughout this review, ‘water immersion’ refers to the immersion in water by a pregnant woman during any stage of labour (first, second, third) where the woman’s abdomen is completely submerged. This implies the use of a receptacle that may be called a pool, tub or bath, and which is larger than a normal domestic bath. The period of immersion by the woman may be for one or more stages of labour, and for any duration. Labour is understood to be as defined by the woman or clinicians at the time, and includes regular painful uterine contractions, leading to full cervical dilation, expulsion of the fetus, and the placenta and membranes.

The use of water immersion as a therapeutic medium is not new. Its exact origins are unknown, but there is evidence of immersion in water being used as a treatment for physical and psychological ill health by the Chinese, Egyptians, Japanese and Assyrians, as well as Greeks and Romans (Reid-Campion 1990; Reid-Campion 1997). Warm water immersion during labour, including birth, used for relaxation and pain relief, has a long history in lay and clinical care (Garland 2000). Igor Tjarkovsky, a Russian boat builder, stimulated the foundation of a movement to promote waterbirth in Soviet Russia in the 1970s. He became convinced of the benefits of water immersion as a means of maximising physiological potential. Michel Odent subsequently popularised water immersion in other European countries (Odent 1983). Although considered a fad by some, the use of water during labour and birth appeals to both women and their carers, particularly those striving for a woman-centred, intervention free, ‘normal’ experience. In 1995, the first international waterbirth conference was held in London, followed by many subsequent study events and international conferences.