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Routine interventions in childbirth before and after initiation of an Action Research project

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ABSTRACT

Background: Unnecessary routine interventions in uncomplicated labour and birth, like cardiotocography (CTG), amniotomy, use of scalp electrode and oxytocin treatment, are associated with further interventions that could harm the woman and the infant. A four year Action Research (AR) project was done on a labour ward to enhance the capacity of local midwives in the promotion of physiological labour and birth.

Aim: The aim of the study was to describe the use of interventions during labour and birth in healthy women at term with spontaneous onset of labour, before and after initiation of an Action Research project.

Methods: A retrospective before and after comparative study of clinical records from 2009 (before) and 2012 (after), based on a random selection of records from primiparous and multiparous women was undertaken. Outcome measures were duration of admission CTG, frequency of admission CTG over 30 min, frequency of amniotomy, use of scalp electrode, and frequency of oxytocin augmentation in spontaneous labour.

Results: 903 records were included. The duration of admission CTG ($p = 0.001$), frequency of admission CTG duration over 30 min ($p = <0.001$), the use of scalp electrodes ($p = <0.001$), and use of oxytocin augmentation of spontaneous labour ($p = 0.014$) were reduced significantly after initiation of the AR project. There were no significant differences in frequency of amniotomy, duration of total CTG, postpartum bleeding, sphincter tears, Apgar score <5 at 5 min, and mode of birth.

Conclusion: Following an AR project, several interventions were reduced during labour and birth. Controlled studies in other settings are needed to assess the impact of collaborative action on decreasing unnecessary interventions.

Introduction

Background

There are good clinical, psychosocial, and economic reasons to keep labour and birth as a normal physiological event as far as possible. Unnecessary routine interventions in labour are associated with further interventions and result in decreased rates of spontaneous vaginal birth [1]. Cardiotocography (CTG), amniotomy, scalp electrodes and oxytocin treatment are often used routinely in labour. For healthy women, routine use of an admission CTG instead of intermittent auscultation has been shown to increase the risk of later use of continuous CTG throughout labour [2], which further could increase the risk of a caesarean section and instrumental births [3]. Amniotomy is a standard routine management to speed up labour. However, there is no evidence that it shortens the labour or improves childbirth experience for women who have had a prolonged labour [4]. Use of oxytocin treatment

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to speed up labour in women with slow progress does not increase the rate of spontaneous vaginal birth [5]. Despite international clinical awareness of this issue, several reports show a continued increase in the routine use of medico-technical and pharmacological interventions for healthy women and babies [6–9].

A Normal Labour Process group was formed in 2010 in a hospital based labour ward in the western part of Sweden, to undertake a systematic quality development project to enhance the capacity of local midwives in the promotion of physiological labour and birth. The Normal Labour Process group's mission was to map and identify weaknesses in the routine management of normal labour. This process work has been previously described by the first author (VN), both in her role as an insider Action Researcher, and as midwife and a full member of the labour ward in which the study was undertaken. The purpose of Action Research (AR) is to describe, understand and explain, as well as to change [10] and, as part of ordinary work, to make a useful contribution to the organization [11].

In the process of the study reported in this paper, the course of normal labour was mapped, and actions taken based on the Action Research cycle [12], where one action led to another (Table 1). Many different changes occurred more or less concurrently as the study progressed. The emphasis developed from, initially, being concerned with the first encounters between the midwife and the expectant parents on the labour ward, to the need to optimize the routine management of labour and birth. Based on dialogue with colleagues, the insider Action Researcher (VN) was able to document the process and evaluate actions that were associated with quality improvement. Various aspects of this project have already been reported. These include women's and their partners' experiences of the first encounter with midwives when arriving at the labour ward. This was described as an asymmetric power relationship and an obedient acceptance of waiting for attention in an unfamiliar situation [13]. The midwives' reactions and reflections on their care approach in the first encounter were described as creating the possibility of glancing beyond routines, in contrast to their normal state of being confined to inherent routines [14]. The collegial discussions as a consequence of this 'glancing beyond routines' eventually highlighted the need to address unnecessary interventions.

Table 1
Time period of the actions in the AR (action research) and Normal Labour Process project.

Action time period	One action led to another
2009 Parents' experiences in focus	Parents' experiences of entering the labour ward were explored [13] and that led to a focus on the care approach in the first encounter
2011 – onwards First encounter in focus	Midwives experiences of the collegially negotiated implementation changes to the first encounter with a woman's and partner's arrival to the labour ward [14]
2011 – onwards Routine interventions in focus	Discussions with midwife colleagues indicated that interventions decided by the midwife in the routine management of labour could be the subject of examination. Local evaluations of interventions were presented iteratively to staff to illuminate trends and to maintain momentum. These actions led in 2014 to the plan of a study to evaluate the amount of interventions that were occurring in healthy women and babies
2014 Evaluation of routine interventions in normal labour in focus	Evaluation of routine management in healthy women with spontaneous onset of labour before the change process started (2009) and one year after the process was ongoing (2012) to explore if routines had changed. Described in this paper

The aim of the study reported in this paper, therefore, was to explore interventions before and after the local Action Research study was initiated, starting with the woman's and partners' arrival on the labour ward. We hypothesised that the use of specific interventions would be reduced as the AR project and the Normal Labour Process project progressed. These were length of CTG at admission and overall, amniotomy (artificial rupture of membranes) use of scalp electrode, and oxytocin augmentation. The study was undertaken in a context where, before the study commenced, there were no specific protocols for use of amniotomy or use of fetal scalp electrode. However, the local routine was that a 20–30 min admission CTG [15] should be used for all women, and augmentation of labour with oxytocin was recommended when there was no progression of labour in three hours according to a 3-h partogram [16].

Methods

A retrospective before and after observational study was undertaken to assess if pre-specified interventions in labour had decreased after the AR was initiated. The selection of records is described in Fig. 1. The study was approved by the Regional Ethical Review Boards at the University of Gothenburg, Sweden (Dnr: 786-14).

Inclusion criteria: Records from women of all parity were eligible if they were healthy, with an uncomplicated pregnancy, a single live fetus in cephalic presentation, with spontaneous onset of labour at between 37 complete weeks and 41 weeks + 6 days gestation.

Exclusion criteria: Records from all women who had a diagnosis that indicated any of the following risks or complications in the current or earlier labours: induction of labour, elective caesarean, a prior caesarean before the index birth, breech presentation, multiple pregnancy, preterm birth in the current pregnancy, or if they had a history of chronic disease, diabetes mellitus and/or hypertonia, or other conditions developed during pregnancy that required increased surveillance of the baby or woman during labour. Further, women without an admission CTG were excluded.

The interventions for the exploration in this paper were chosen as there is scientific evidence for not using them routinely [1–7]. Interventions studied were duration of admission CTG, number of admission CTG over 30 min, duration of total CTG, frequency of amniotomy, use of scalp electrode, and frequency of oxytocin augmentation of spontaneous labour. The interventions were noted in the electronic records and within the management of normal labour where midwives could influence the routine use of interventions, including length of admission CTG. In Sweden an admission CTG of 20–30 min is clinical standard [15] and therefore frequency of admission CTG over 30 min was chosen as one of the outcome measures. Data were also collected on outcomes including mode of delivery, sphincter tears, postpartum haemorrhage, meconium stained liquor, and Apgar score at 5 min.

Sample size was calculated to show a 10% reduction in duration of admission CTG. With 80% power and an alpha level of 0.05 in a two-sided test, 400 records were needed each year, 2009 and 2012. A sample of 800 records correspond to approximately 20% of all total births in years 2009 and 2012. From the obstetric database at the hospital all births in 2009 and 2012 were listed (45% primiparous each year). A random selection of even number of records (2 primiparous and 2 multiparous women) was done every third day around the clock from January to December to give a good representation of labours throughout each year. Exclusions were applied prior to random selection, but during the analysis of the

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