Commentary

Understanding The Factors Surrounding Precipitous Labor: A study into associated causes, risk factors and complications

Abstract

Precipitous labor is certainly not a novel statement in the field of medicine. It has been reported in various regions over the years with a prevalence of about 1-3% in the United States. A study revealed that the prevalence of precipitous labor in Australia is 14%, which is relatively higher than that of the US. This gives a general idea that the incidence of precipitous labor varies according to different regions. This research paper examines the prevalence, risk factors and complications associated with precipitous labor. We analyzed the issues surrounding precipitous labor, relying on various qualitative and quantitative studies to communicate vivid understanding of this topic. Our conclusions are drawn by considering all factors surrounding precipitous labor and comparing the associated complications with those seen in regular labor as a means of knowing if it is meant to be encouraged or discouraged.

Keywords: Labor, Precipitous Labor, Precipitous Risk Factors, Nulliparous, Multiparous, Child Delivery.

Introduction

Labor, being a household word is defined by Johns Hopkins Medicine as "a series of continuous, progressive contractions of the uterus that help the cervix dilate and efface (thin out)", it covers the period from the first contraction of the uterus to the subsequent delivery of the fetus. Any labor that is completed in less than 3 hours after commencement is generally termed 'Precipitous labor'.

Many nulliparous women, most especially in the Western world, are often burdened by the fears of labor pains and postpartum complications associated with childbirth. This in part, has accounted for the popularity of epidurals to alleviate labor pains and has also partly accounted for the reason why some women walk away from anything whatsoever that will require them to go

through pregnancy and childbirth. Recent studies have associated the use of epidurals as pain relief during labor with increased risk of postpartum complications and effacement of many lifelong benefits associated with labor pains. [1, 2]

On another end, the world's fastest and painless labor reportedly took place on March 23, 2021 in Basingstoke, Hampshire, and a county in England [3]. This labor lasted for just 27 seconds and despite the rapidness of labor, the child and mother were safe and well. This is a typical example of precipitous labor.

A regular labor for a nulliparous woman should take between 3-30 hours while for a multiparous woman it should take between 3-15 hours [4]. Although, this form of labor, at first glance, may seem like something to be desired by all, yet, different researchers have associated precipitous labor with so many complications ranging from perineal tear to aspiration of amniotic fluid by the fetus [4. 5, 6]. It is also important to note that precipitous labor is not always painless, in most cases it is only accompanied by a reduction in pain when compared with regular labor pains.

The analysis of the benefits of labor pains, detailed overview of precipitous labor as well as significant complications associated with it, and comparison between regular labor and precipitous labor, are all covered in this research paper.

Research methodology

This research is qualitative research that combines data obtained from various articles and published journals to draw our conclusions. We went through data gotten from hospitals where precipitate deliveries have been reported in order to understand the causes, risk factors as well as maternal and neonatal complications associated with this form of delivery.

Data sources included, but was not limited to:

- Various published articles in medical journals,

- Quantitative data gathered by certain researchers on precipitate labor

- Published interviews given by mothers who have experienced this phenomenon detailing mental, physical and emotional health of mother and

child.

Findings from the Literature

This section gives the results of the literature search.

Based on previous research conducted, it has been concluded that precipitous delivery is more common in women who have suffered pelvic trauma and in subsequent deliveries after a precipitate delivery [7]. And as such women who have experienced this need to be followed long-term to decrease the risk of preterm delivery [7} it has also been found that precipitous labor is more common in nulliparous women than in multipara [8]. Data collected show increased incidence in hypertensive women, early maternal age, previous preterm deliveries, (which are mostly underweight), are of higher parity and with a BMI of 30 -35[7, 9]. Common maternal complications include placenta abruption, postpartum hemorrhage, cervical and perineal tears and prolonged hospitalization time. And as such, precipitous delivery is associated with higher rates of maternal complications [10]. Conversely, precipitous deliveries are not associated with neonatal outcomes [9].

An Overview of Precipitous Labor

Labor proceeds in three different stages, popularly termed 'the 3 stages of labor', as follows;

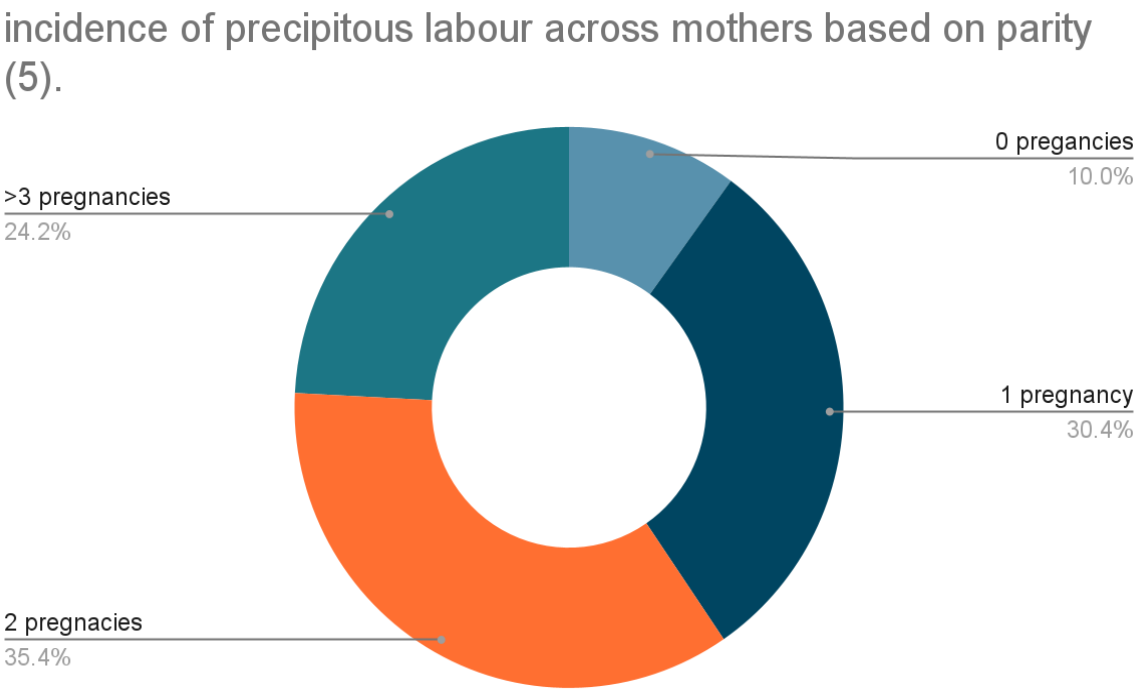
- The first stage proceeds from the point when regular contractions begin, and is completed when a full cervical dilation is achieved.
- The second stage picks up from the cervical dilation achieved in stage one, up to the delivery of the baby.
- From delivery of the baby to the delivery of the placenta is termed, stage 3 of labor [5, 11].

The amount of pain experienced is known to increase as a woman progresses through these 3 stages of labor [11]. This also means that the longer the time spent in labor, the more the pain that would be experienced. Precipitous labor as alluded to earlier, is a form of labor in which all of these three stages of labor are completed within less than 3 hours, this is quite unusual when compared to the labor time frequently seen (3 hours or more) [4], and the reduced duration of labor results in reduced pain or in some cases completely painless childbirth. The occurrence of this phenomenon spans across different tribes of different

nations of the world. Some of the risk factors that have been implicated in precipitous labor include;

- Preterm deliveries: due to the smaller size of the baby. view figure 3.0
- Strong uterine and abdominal contractions.
- The use of prostaglandins and local herbs to stimulate delivery. view figure 2.0
- A multipara woman with significantly relaxed pelvic floor muscles (Figure 1.0).
- Conception using fertility treatments.
- Maternal hypertension, especially if poorly managed (Figure 2.0).
- Preeclampsia
- Maternal BMI of 30-35 and,
- Family history of precipitous labor.[5, 12]

Some studies have also shown an increased incidence of precipitous labor in Women with increased maternal age (Figure 4.0).



- Figure 1.0: shows the incidence of precipitous labor in relation to the

parity status of mothers. The highest incidence (35.4%) is seen in women who are experiencing a second delivery, signifying higher incidence of precipitous labor in multiparous women.

Source: Suzuki, S. (2014, December 25). *Clinical Significance of Precipitous Labor | Suzuki | Journal of Clinical Medicine Research*. https://www.jocmr.org/index.php/JOCMR/article/view/2058

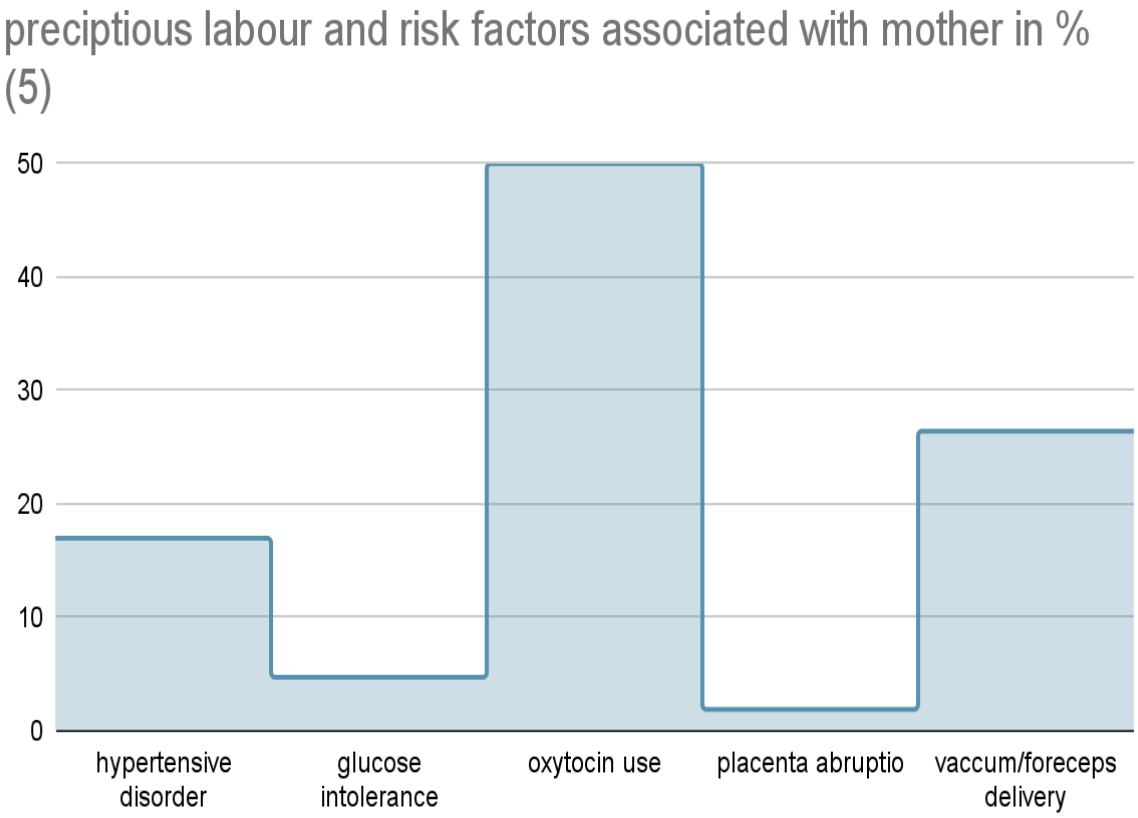


Figure 2.0: shows various risk factors and the incidence of precipitate labor in the population of women with these risk factors, the strongest association is seen in women who have used oxytocin, with 50% of the women experienced precipitous delivery in the study, admitting to the use of oxytocin.

Source: Suzuki, S. (2014, December 25). Clinical Significance of Precipitous Labor | Suzuki | Journal of Clinical Medicine Research. https://www.jocmr.org/index.php/JOCMR/article/view/2058

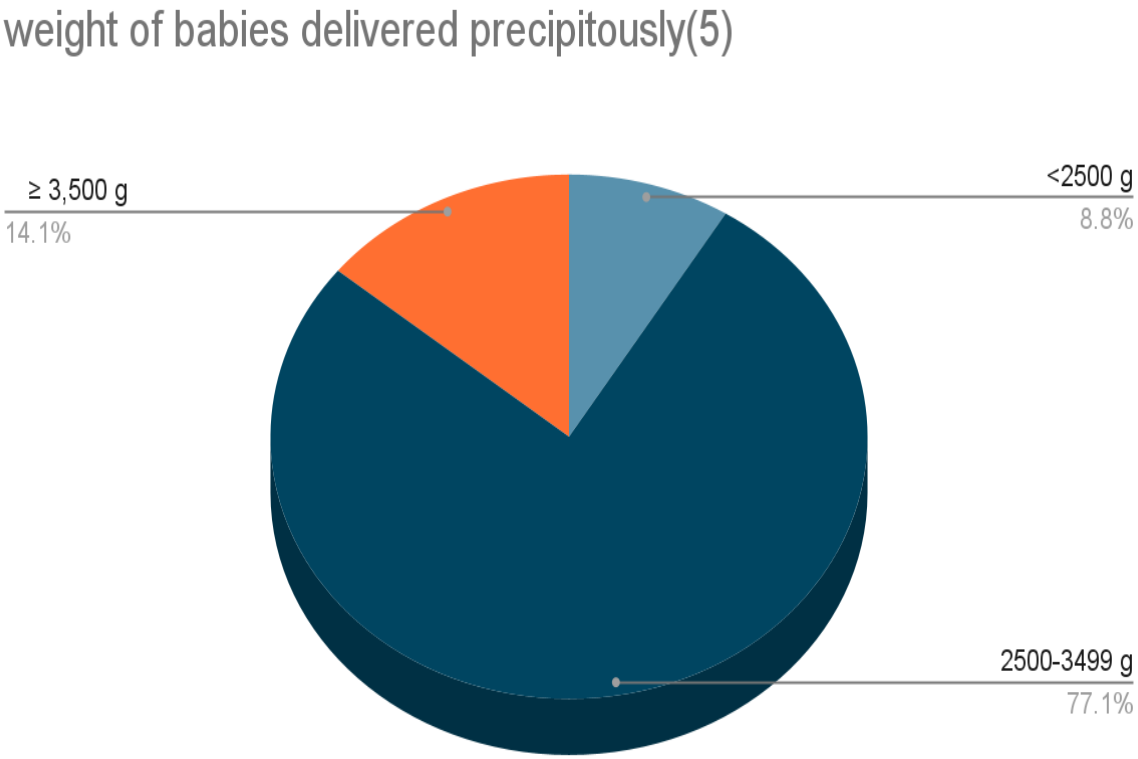


Figure 3.0: shows, in percentages the weight class of babies in this particular study who were delivered precipitously. A higher percentage (74.1%) of the babies fell within the normal weight range of (2500-3499g), 8.6 % had a lower weight (< 2500g), and 14.1 % of the babies weighed above 3500g.

Source: Suzuki, S. (2014, December 25). *Clinical Significance of Precipitous Labor | Suzuki | Journal of Clinical Medicine Research*. https://www.jocmr.org/index.php/JOCMR/article/view/2058

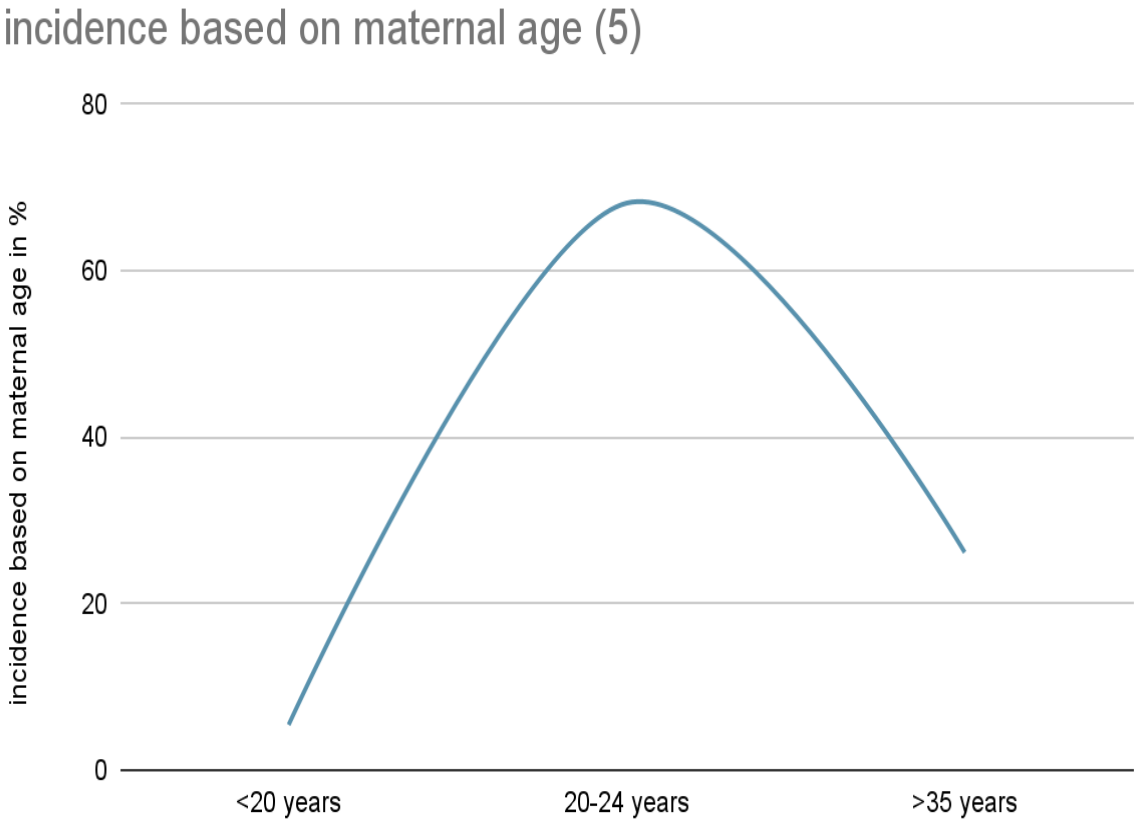


Figure 4.0: shows the incidence of precipitous labor in women across different age bracket, in this study. The highest incidence was found in women between ages 20 and 24.

Source: Suzuki, S. (2014, December 25). *Clinical Significance of Precipitous Labor | Suzuki | Journal of Clinical Medicine Research*. https://www.jocmr.org/index.php/JOCMR/article/view/2058

Painless labor or at least, a labor with reduced pain is something that should be desired, although precipitous labor offers this, it is also accompanied by a myriad of complications as follows;

- Increased risk of cervical or vaginal lacerations/tearing.
- Hemorrhage of uterus or vagina.
- Increased risk of perineal lacerations.

- Increased risk of head/brain injury and also intracranial hemorrhage in the baby.
- Greater risk of placenta abruption and retention.
- Risk of infections if delivery takes place in an unsterile environment or when in the process of people rushing to receive the baby.
- Babies may have a slower transition to the outside life, characterized by mild and transient respiratory difficulty amongst others.
- Aspiration of meconium and amniotic fluid by the baby.[5, 7, 10, 13]

All these complications call for a careful reassessment of precipitous labor.

Benefits of Regular Labor Pains without Precipitate Delivery

The pain experienced during labor has been shown to be instrumental in stimulating the body to release certain hormones which provide some lifelong benefits to both the mother and baby [1, 14]. First, this pain enables mothers to find the optimal position for birthing the baby; that is, the pain guides the mothers' body positioning to the best position that will be healthy and favorable for birthing the child. This results in smooth progression of labor. In addition to this, the pain produced by the contraction of the uterus and subsequent dilation of the cervix sends signals to the brain to increase the levels of oxytocin, a hormone that aids this process, again allowing for a smooth progression of labor [1, 14, 15].

The hormone, oxytocin, is also popularly called 'the love hormone' because of its usefulness in bonding. It plays an enormous role in the bonding between mother and child after birth. The pain is proportional to the levels of oxytocin hormone released; reduction in labor pains decreases the amount of the hormone that is released, meaning that this kind of delivery is deprived of the benefits provided by oxytocin hormone [1, 15-20]

Another hormone released by the body during labor pains is endorphin. This hormone is a relaxing hormone, which helps to reduce the sensation of pain [15, 17-20] and put a person in a 'dream-like' state [1]. Again, if there is a reduction in labor pains or a completely painless labor, there will be either a decreased release or complete eradication of the release of this hormone. The truth is, lack of endorphins can make the mother experience severe pains, postpartum and can also contribute to 'baby blues' [1, 15].

Another group of hormones released in response to labor pains are the catecholamines. These hormones help the woman stay alert and gather the strength needed to push the baby out. The surge of catecholamine also helps the baby survive the oxygen deprivation experienced in the birth canal. Catecholamines also increase the alertness of the baby, which is beneficial for bonding between mother and child after birth and it aids the initiation of breastfeeding as well [1, 15, 17-20].

Finally, prolactin has also been suggested to progress labor and help the newborn adjust to life ex-utero. This hormone is actively released during labor as well [15, 17-20].

What a wealth of benefits labor pains has to offer! The use of epidurals can interfere with the release of these hormones, hence, the advice that epidurals should not be used unless it becomes absolutely and unavoidably necessary and even at that, it still must be administered at a prudent timing [15-21].

Conclusion

So far, in this article we have examined the causes of precipitous labor, the risk factors as well as complications associated with it. Seeing that it is accompanied by a whole lot of complications, it is important for a woman to know if she is at risk for this kind of labor so as to seek support from a qualified obstetrician before the delivery. This will ensure that maternal and baby's health are prioritized. Induction of labor is one method that can be adopted to prevent precipitous labor [6]. There has been no concrete link between precipitous delivery and long term neonatal outcomes, in studies carried out so far [9].

Complications have proven to be common with precipitous delivery and women at risk ought to be closely monitored for optimal maternal health [7-10]. The benefits of labor pains have also been discussed extensively in this article, and it will be correct to say that there are greater and long-lasting benefits associated with having a regular labor as opposed to having a precipitous one, benefits which are mostly tied to the pains experienced during labor. On a final note, we will emphatically stress that precipitous labor is not healthy and should therefore be discouraged by all means. The parameters surrounding this kind of labor is almost always harmful to both mother and child. To corroborate this, in an interview a woman reported her experience of precipitous delivery as

thousands of rocks falling on her all at once and she felt she did not deliver the "right" way due to the short nature of her delivery [22]. It is important to validate these experiences and provide the necessary emotional support to such women.

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