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First and second stages of labor: risk factors, diagnoses, management

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Abstract

The aim of this review article was to discuss the risk factors, diagnoses, management options, and outcomes of the first and second stages of labor and provide an evidence-based approach where one exists. Approximately one-fifth of human laborers have dystocia. Dystocia may arise due to incoordinate uterine activity, abnormal fetal lie or presentation, and absolute or relative cephalopelvic disproportion. The American Congress of Obstetricians and Gynecologists (ACOG) guidelines recommend a full evaluation of the maternal-fetal status, the status of the cervix, and at least 39 completed weeks (full-term) of gestation for optimal health of the newborn when considering elective induction of labor. In 2011, one in three women who gave birth in the United States did so by cesarean delivery, Although cesarean delivery can be life-saving for the fetus, the mother, or both in certain cases, the rapid increase in the rate of cesarean births without evidence of concomitant decreases in maternal or neonatal morbidity or mortality raises significant concern that cesarean delivery is overused. Good management of the first and second stages of labor can decrease the rate of cesarean delivery and reduce fetal and maternal complications.

Keywords: Normal Labor; Cesarean section; First stage of labor

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Introduction

Every year in the United States, about 4 million babies are born. Typically, these births occur as normal vaginal deliveries without any complications [1]. During the early stages of labor, it is crucial to encourage the mother to walk and remain in upright positions. It is also recommended to wait until the mother's cervix is at least 6 cm dilated before diagnosing any potential issues. Continual support during labor, along with intermittent monitoring for low-risk deliveries, and following protocols for preventing group B streptococcus are all factors that can improve the chances of a successful birth [2]. In most cases, women who have had a previous cesarean delivery can still have a trial of labor for a vaginal birth, and should be counseled accordingly. Pain management during labor can include various methods such as complementary therapies, opioids, epidurals, and pudendal blocks [3].

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To reduce complications during the second stage of labor, warm compresses can be applied to the perineum, and mothers should be given enough time to push before any necessary interventions. It has been found that waiting longer to push does not affect the likelihood of a spontaneous vaginal delivery [4]. In the case of a tight nuchal cord, it is best to clamp and cut it twice before delivering the baby's shoulders. Alternatively, the "somersault maneuver" can be used, where the cord is kept nuchal and the distance between it and the placenta is minimized by pushing the baby's head towards the mother's thigh. After birth, it is recommended for the baby to have skin-to-skin contact with the mother [5].

Suctioning the nose and mouth with a bulb is not necessary for babies born after 35 weeks. Proper postpartum care for both mother and baby can be achieved through delayed cord clamping, active management to prevent excessive bleeding, thorough examination for possible anal sphincter injuries, and the use of absorbable synthetic sutures for any second-degree perineal tears [6].

The First Stage of Labor

The initial phase of childbirth begins with consistent contractions of the uterus and concludes when the cervix is completely dilated at 10 centimeters. Reevaluation of data from both the National Collaborative Perinatal Project (which included 39,491 deliveries between 1959 and 1966) and the Consortium on Safe Labor (which included 98,359 deliveries between 2002 and 2008) has prompted a reassessment of the typical labor progression. It is considered normal for latent labor to persist for extended periods and it should not be seen as a reason for a cesarean delivery. When active labor begins and dilation occurs at a faster pace, it may not manifest until the cervix reaches 6 centimeters in diameter [7].

A cesarean delivery during active labor is only necessary if the woman's cervix has dilated to at least 6 centimeters and there has been no change for at least four hours during contractions (with more than 200 Montevideo units per intrauterine pressure catheter) or if there have been insufficient contractions for at least six hours. It is recommended to rupture the membranes before diagnosing a lack of progress, if possible [8].

Obese women may experience significantly longer labor. It has been observed that engaging in activities such as walking and maintaining an upright position as well as receiving continuous support during the first stage of labor increases the likelihood of achieving a vaginal delivery without intervention and decreases the use of regional anesthesia [9].

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Second stage

The beginning of the second stage is marked by complete dilation of the cervix and concludes with the delivery. The fetal head descends below the pubic symphysis and extends shortly afterward. Pushing is allowed once the cervix is fully dilated [10]. Engaging in delayed pushing or "laboring down" may reduce the time spent pushing, but it also prolongs the second stage and does not impact the rate of natural vaginal delivery. This is referred to as a prolonged second stage of labor and is characterized by no descent or rotation after two hours of pushing in a multiparous woman without an epidural, three hours in a multiparous woman with an epidural or a nulliparous woman without an epidural, and four hours in a nulliparous woman with an epidural [11].

A prolonged second stage of labor in nulliparous women has been linked to chorioamnionitis and neonatal sepsis in the newborn. If the fetus is in the occipitotransverse or occipitoposterior position during the second stage, manually rotating it to the occipitoanterior position can lower the chances of needing assisted delivery or a cesarean section [12]. The fetal position can be determined by locating the sagittal suture with four suture lines near the anterior fontanelle and three near the posterior fontanelle. The position of the ears may also assist in identifying fetal position when there is a significant amount of caput and the sutures are difficult to feel. In cases where fetal position is unclear based on examination findings, bedside ultrasonography can be helpful.

Third stage

The third stage starts after the conveyance of the infant and finishes with the conveyance of the placenta. The typical length of the third phase of work is eight to nine minutes [13]. The most serious gamble in the third stage is a post-pregnancy drain, which was as of late re-imagined as 1,000 mL or a greater amount of blood misfortune or signs and side effects of hypovolemia. The middle blood misfortune with vaginal conveyance is 574 mL. Blood misfortune is frequently misjudged by as much as 30%, and misstatement increments with expanding blood loss [14]. The gamble of discharge increments following 18 minutes and is multiple times more prominent after 30 minutes. Post-pregnancy drain is generally usually brought about by atony (70% of cases) [15].

Different causes incorporate vaginal or cervical cuts, uterine reversal, held results of origination, and coagulopathy. Records risk factors for post-pregnancy drain. Dynamic administration of the third phase of work (AMTSL), which is suggested by the World Wellbeing Organization is related to a decrease in the gamble of discharge, both more prominent than 500 mL and more prominent than 1,000 mL, maternal hemoglobin level of under 9 g for each dL (90 g for every L) after conveyance, need for maternal blood bonding and need for more uterotonics in labor or in the initial 24 hours after delivery [16]. In any case, AMTSL is likewise connected with an expansion in post-pregnancy maternal diastolic circulatory strain, emesis, utilization of absence of pain, and a decline in neonatal birth weight [17]. Despite the fact that AMTSL is customarily

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comprised of oxytocin (10 IU intramuscularly or 20 IU per L intravenously at 250 mL each hour) and early rope bracing, the main part currently gives off an impression of being the organization of oxytocin [18]. Early string clipping is presently not a part since it doesn't diminish post-pregnancy drain and might be related with neonatal harm.

Deferred rope clasping may try not to obstruct early transplacental bonding and stay away from the expansion in maternal pulse and reduction in fetal weight related with conventional AMTSL [19]. More exploration is required in regards with the impacts of individual parts of AMTSL [20]. Cervical, vaginal, and perineal slashes ought to be fixed in the event that there is dying. Second-degree cut fixes are best acted in a ceaseless way with absorbable engineered stitches. Contrasted and hindered stitches, and constant fix of second-degree perineal cuts are related to less absence of pain use, less momentary torment, and less requirement for stitch removal. Contrasted and catgut (chromic) stitches, manufactured stitches (polyglactin 910 [Vicryl], polyglycolic corrosive [Dexon]) are related with less agony, less absence of pain use, and less requirement for resuturing. Notwithstanding, engineered stitches are related to the expanded need for unabsorbed stitch removal [21].

There are no quality randomized controlled preliminaries surveying fix versus non-repair of second-degree perineal lacerations. Outer butt-centric sphincter wounds are frequently unnoticed, which can prompt waste incontinence.48 Information on perineal life structures and cautious visual and advanced assessment can increment outside butt-centric sphincter injury detection.

Discussion

Breathing activity during work includes profound inward breath and exhalation. Playing out this exercise helps in the assembly of the muscles of the pelvic floor, and the muscles of the mid-region are effectively contracted and oxygenated [22]. Nonstop help during work fundamentally improves the work physiology and the mother's sensations of control and capability, diminishing reliance on clinical mediations [23]. Successful and safe procedures that can possibly diminish the distress of ladies in labor are significant. Various kinds of CAM have demonstrated solid in decreasing work torment [24], physiological and mental pressure, nervousness, and strain cerebral pain in pregnancy [25]. There is likewise proof accessible that ladies who are truly dynamic during pregnancy have a more limited length of dynamic work [26], lower number of perineal tears [49], decrease in CS rates and fitting maternal and fetal weight gain.

The length of work is an impeding variable in the pregnancy result and maternal and neonatal confusions. In a newborn child, a delayed length of work could bring about gagging, neuro-physiological confusions, and passing [27]. Moreover, ladies with a more drawn-out span of work are powerless against post pregnancy discharge, mental pain and weariness. Negative birth insight during the primary work is related with a resulting wish for CS in the following work or choosing not to have additional youngsters, and delayed work is one of the main considerations adding to such a solicitation [28]. Around the world, it is anticipated that the CS

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rate will approach 30%, with 38 million CS acted in the year 2030 [29]]. Ladies going through CS have a higher frequency of ensuing premature delivery, placenta praevia and accreta, and kids brought into the world by CS have a higher rate of asthma and heftiness than youngsters conceived vaginally. Be that as it may, breathing activity during the main phase of work was not viewed as successful in expanding maternal fulfillment [30].

This might be credited to the way that maternal fulfillment is affected by different elements, specifically arranged labor, diminished stand by time, support got from the medical services experts, birth room foundation, patient-guardian connection, and their association in decision-production [31].

WHO has defined complementary and alternative medicine (CAM) as a “broad set of health care practices that are not part of that country’s tradition or conventional medicine and are not fully integrated into the dominant healthcare system”. CAM is categorised into the alternative medical system, mind-body interventions, biologically based treatment, energy therapies, and manipulative and body-based methods. Increasing evidence on the effectiveness of CAM has significantly accentuated its utilization among pregnant women and postpartum mothers. CAM is effective in reducing labor pain, pregnancy-related back and pelvic pain [32], nausea and vomiting during pregnancy, EA requirement, augmenting normal vaginal birth, and postpartum uterine after-pain

Conclusion

Prolonged labor (PL) or dystocia is one of the most common birth complications and the most common indication for instrumental delivery or delivery by emergency caesarean section (CS) [1]. Globally, PL is prevalent among 8% of women giving birth. Women with PL bring forth a negative birth experience, a risk factor for a later wish for a CS. The global increase in the CS rate is accompanied by numerous maternal morbidities. Improved maternal health is one of the United Nations Millennium Development Goals. According to the World Health Organization (WHO), CS rates higher than 10% at a population level are associated with increased maternal and neonatal mortality rates. The process of labor and childbirth brings forth numerous physical and psychological demands resulting in maternal stress with the release of the hormone cortisol. Heightened stress and release of cortisol hormone have a detrimental effect on childbirth, lactation, and infant-mother bonding.

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Competing interests

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Ethics Statement

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Authors' contributions

All authors shared in the conception and design and interpretation of data, drafting of the manuscript and critical revision of the case study for intellectual content and final approval of the version to be published. All authors read and approved the final manuscript.

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