

PAINLESS CHILDBIRTH IN CHINESE HOSPITAL: A SYSTEMATIC REVIEW

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Abstract

Background: The China's cesarean section rate has risen sharply in the past 50 years, so the situation of painless childbirth application should be improved in Chinese medical organization. But the situation information of painless childbirth was lacked in Chinese medical organization. **Research aim:** The influence factors of painless childbirth are numerous and complex in Chinese hospital so that the aspect of influence factors of painless childbirth had controversy. This study was conducted to summarize and critically evaluate influence factors of painless childbirth in China. **Methods:** All relevant studies up to September 14, 2017, were include, through comprehensive searches in CNKI, CBM, Wanfang and Wip databases. **Results:** 18 reports were included from 213 literature. The rate of pregnant woman use painless childbirth is different in different hospital, that the lowest rate is 6.91%, the highest rate is 44.83%, the mean of rate is 28.57%. Similarly, The success rate of painless childbirth is different in different, that the lowest rate is 6.25%, the highest rate is 23.44%, the mean of rate is 15.00%. In terms of the failure rate of anesthesia, the lowest failure rate in hospitals is 11.81%, the highest failure rate in hospitals is 22.00%, the mean of failure rate in hospital is 15.82%. **Conclusion:** The painless childbirth application of China need more publicity and faster development as barrier of painless childbirth application from the lack of related publicity and the immature technology.

Keywords: Painless Childbirth; Childbirth Problems; Immature Technology.

1. INTRODUCTION

Painless childbirth refers to the use of various methods to reduce or even disappear the pain during childbirth. The main methods include intrathecal analgesia, drug analgesia, nerve block, acupoint stimulation, water birth, computer therapeutic equipment and psychological analgesia. From the report, the development of painless childbirth technology is affected by cesarean section rate. From 2004 to 2007, the rate of cesarean section with social factors increased from 9.8% to 15.7%. while The rate of cesarean section due to social factors dropped to 14.1% after using painless childbirth technology in 2008 (Zou, 2011).

Although the viewpoint what painless childbirth can reduce cesarean section rate is controversial, the viewpoint what painless childbirth can reduce the rate of cesarean section of social factors is approved. Hua Cheng report situation of cesarean childbirth in before Labor analgesia group and after Labor analgesia group. For one things, the rate of cesarean childbirth of before Labor analgesia group (n = 2114) is 43.1% (n = 912). For other things, the rate of cesarean childbirth of after Labor analgesia group (n = 2674) is 42.1% (n = 1125). According to the data of the two groups, there was no significant change in cesarean section rate. However, the rate of cesarean section was significantly decreased by social factors that from 18.5% (n = 169) to 9.2% (n = 104) (Cheng & Xie & Sheng, 2010). Chuiying Wang shown the cesarean section rate of China was drop that was 56.04% in 2014, 49.76% in 2015 and 32.12% in 2016, and cesarean section rate of social factors was

also drop that was 18.21% in 2014, 16.35% in 2015 and 2.12% in 2016 (Wang & Jin, 2017).

The rate recommended of cesarean section by the world health organization (WHO) is less than 15%, but the China's cesarean section rate has risen sharply in the past 50 years (Nils & Alexandre & Michal & Jean-Charles & Francois & Patricia & Haim & Eric & Marylène & Rebecca & William, 2015), so painless childbirth in China lacks the attention it deserves. Unfortunately, although painless childbirth techniques were confirmed that the benefits of maternal and child safety outweigh the risks, few studies have investigated the painless childbirth in China.

The aim of our study was to provides reference for improving the painless childbirth rate and success rate of painless childbirth, describe the reason why Chinese women have not use painless childbirth, and discuss causes and management of analgesia failure during labor analgesia.

2. MATERIALS AND METHODS

Design

We collected relevant information from online databases in China, and then reviewed the painless childbirth situation in China by screening and analyzing the information.

Setting

All the data come from the authoritative database in China, this is to ensure the reliability and accuracy of the data.

Sample

CNKI, CBM, Wanfang and Wip databases were searched from inception to September 2017 in order to find data of painless childbirth. The painless labor, analgesia of labor and labor analgesia were queried as keywords.

Measurement

We manage literature by EndNoteX7. Firstly, duplicate literatures were excluded. Also, we excluded reviews, academic papers, case care, and literature that had interventions for the included study samples based on title and abstract. Finally, uncertain literature was excluded or included by reading the full text. Finally, we made the literature record by Excel2016. Data were extracted by two researchers, that the extracted information include title, author, year of publication, research object.

3.RESULTS

Literature Basic Information

Total of relevant literature has 213 cases, they from 4 online database that include CNKI (n = 53), CBM (n = 47), Wanfang (n = 60), Wip (n = 53). In exclusion aspect, the researchers exclude repeat literature (n = 147), reviews (n = 3), academic papers (n = 2), intervention trials (n = 18), and unrelated literature (n = 25). 18 literatures were included in the study and analysis, they contain literature of descriptive analysis type (n = 3) and literature of qualitative analysis type (n = 15).

3.1 General Description of The Selected Articles or Reports

As shown in **Table 1**, 18 literatures were identified, that the lowest rate of painless childbirth was 6.91%, the highest was 44.83% and mean was 28.57% on basis of painless childbirth record. According to the record of changing what painless childbirth change to cesarean section that the changing is belong to failed painless childbirth (n = 8), that the lowest rate of failed painless childbirth was 6.25%, the highest was 23.44% and mean was 15.00%.

In the influence factors of painless childbirth, the reason why pregnant woman choose painless childbirth include voluntary, trial of Labor and no contraindications. On the contrary, reason of non-painless childbirth include natural vaginal childbirth, cesarean section, and social factors on basis of the literatures (n = 2).

As the literatures (n = 12), the reasons of painless childbirth change to cesarean section include obstetric factors, social factors and anesthetic factors. The details of the obstetric factors on basis of literature analysis result (n = 6) include abnormal fetal position, fetal distress, fetal macrosomia, uterine contraction, cervical factors, signs of uterine rupture, umbilical cord prolapse, stagnation of the active period, stagnation of fetal head decline and stagnation of the second stage of labor. About painless childbirth change to cesarean

section as anesthetic factors, the lowest rate of failed painless childbirth of anesthetic factors was 11.81%, the highest was 22.00% and mean was 15.82%.

4.DISCUSSION

4.1 Application of Painless Childbirth Technology

Painless childbirth technology can safely and effectively solve some childbirth problems. As the complex process of childbirth, uterine contraction and descending of fetal head so that the mother suffered severe pain so that the body produces large amounts of catecholamines, the mother will prolonged labor or delayed labor if not dealt with in time, even dystocia or postpartum hemorrhage is likely to happen. Furthermore, the report shows that women with pain during childbirth were more satisfied with risk transfer than women without pain, but there was no difference in information transfer between the two methods (Christopher & Burkle & David & Olsen & Hans & Adam & Jacob, 2017). The analgesia methods used in this study included epidural analgesia, lumbar - hard analgesia and inhalation analgesia of laughing gas.

In addition to drug anesthesia, psychological analgesia is also important. Qiong Yang said that the preventive analgesia of spirit can significantly reduce maternal pain and alleviate psychological pressure, that those methods not only has significant analgesic effect but also is suitable for application promotion, the preventive analgesia of spirit contains different breathing methods, music therapy, moderate massage, kinesitherapy and combined spinal-epidural anesthesia (Yang & Liu & Shang, 2017).

4.2 The Influence Factors of Pregnant Women Choose Painless Childbirth

In the China, the influence factors of pregnant women choose painless childbirth include individual factors, obstetric factors and social factors. In the individual factors, pregnant women's income, the living environment and health insurance related to her choice. In analgesic effect, pregnant women's age, education and occupation effects is not associated with analgesic effects. Instead, it was the emotion of the pregnant woman that was linked to the analgesic effect (Deng & Wang, 2017).

In obstetric factors, some clinical symptoms may make painless childbirth to fail, that contain abnormal fetal position, fetal distress, pregnancy complications and abnormal birth canal. But obstetric factors are controllable on basis of the report (Shen & Yao, 2016).

In social factors, this factor is uncontrollable and complex, that include advanced age, fear of pain, faith, family wishes and superstition. In all of social factors, fear of pain is the most important social factor. The report shows more than 90% of pregnant women want to give birth naturally, but they voluntarily give up natural childbirth and demand cesarean section (60% ~ 70%) as they have a fear of childbirth and fear of pain

(90%) (You, 2010). As the report, some hospital invite women to childbirth programs and classes so they know more about painless labor, because the programs and the classes can reduce pain during childbirth (Akca & Esmer & Ozyurek, 2017).

4.3 Influence Factors of Failed Painless Childbirth

Influence factors of failed painless childbirth include obstetric factors, anesthetic factors and social factors. In obstetric factors, uterine contractions, arrested labor, and fetal distress will make painless childbirth difficult. In social factors, the intention of the mother's family can affect the choice of painless childbirth, and failure of anesthesia can also lead to failure of painless childbirth.

4.4 Limitations

The research result was limited as database and literature, because Information beyond the scope is difficult to collected so that the result was limited.

CONCLUSION AND RECOMMENDATION

In conclusion, the influence factor of receiving painless childbirth and successful painless childbirth is multiple and complex, that it include obstetric factors, social factors and anesthetic factors. In obstetric factors, the factors main come from clinical symptoms, that most of them can be controlled. In social factors, the factors are complex and numerous, that they come from individuals and families. Finally, medicine, personal physical and psychological conditions are anesthetic factors as anesthesia is divided into drug analgesia and psychological analgesia. According to the above, painless childbirth in China needs to be improved. The method of improvement includes two aspects: improving painless childbirth technology and promoting painless childbirth.

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DECLARATION OF CONFLICTING INTERESTS

We declare that we have no financial and personal relationships with other people or organizations that can inappropriately influence our work, there is no professional or other personal interest of any nature or kind in any product, service and/or company that could be construed as influencing the position presented in, or the review of, the manuscript entitled.

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Table 1

Literature	Sample			Painless Childbirth Technique	Painless Childbirth Rate (%)	Changing to cesarean section rate (%)	1. Choose/Non choose the cause of painless childbirth, 2. Changing to the cause of cesarean section, 3. Other results
	Sample Size (Case)	Year	Hospital				
Yunning Li, et al (Li & Wang & Xu, 2004).	92	2004	The 451st hospital of Shaanxi people's liberation army	Epidural analgesia	39.13% (n = 36)	8.33% (n = 3)	1. (1) Voluntary; (2) No contraindications for vaginal childbirth; (3) No contraindications for intraspinal anesthesia; 2. (1) fetal distress in uterus
Zhenping Hou, et al (Hou & Gao & Zhou, 2009).	160	2008 - 2009	Hebei jizhong energy xingtai mining group general hospital	Nitrous Oxide Aspiration Analgesia	-	6.25% (n = 10)	1. (1) Voluntary; (2) No contraindication;
Qicai Peng, et al (Peng & Fan & Hou, 2009).	312	2007 - 2008	The third affiliated hospital of sun yat-sen university in guangdong	Combined spinal-epidural analgesia	-	18.91% (n = 59)	1. (1) Voluntary; (2) No contraindications for vaginal childbirth; 2. (1) persistent occipitoposterior position/occiput posterior position 49.15% (n = 29); (2) Fetal distress 33.90% (n = 20); (3) Uterine inertia 10.17% (n = 6); (4) Fetal macrosomia 3.37% (n = 2); (5) Family asking 3.37% (n = 2)
Shiming Ding, et al (Ding & Ding & Bao, 2010).	1620	2008	Zhejiang ruian maternal and child health care center	-	6.91% (n = 112)	-	1. (1) Vaginal childbirth 45.56% (n = 738). (2) Had the medical indication of cesarean section 37.04% (n = 600); (3) Cesarean section with social factors: 10.49% (n = 170); 3. Influence factor of painless childbirth: (1) maternal education; (2) occupation; (3) family place; (4) annual income; (5) medical insurance (+); (6) Knowledge of painless childbirth (+)
Chunhua Bao, et al (Bao & Ding & Ding, 2011).	855	2011	Zhejiang ruian people's hospital	-	23.39% (n = 200)	-	1. (1) Voluntary; (2) No obstetric complications; (3) No anesthesia contraindications; 2. (1) Stagnation in the active stage 39.11% (n = 70); (2) persistent occipitoposterior position 34.08% (n = 61); (3) Fetal distress 10.61% (n = 19); (4) descending of fetal head stagnation 5.03% (n = 9); (5) Stagnation in the second stage of labour 4.47% (n = 8); (6) Social factors 3.91% (n = 7); (7) signs of uterine rupture 1.68% (n = 3); (8) Umbilical cord prolapse 1.12% (n = 2);

Huafan Li (Li & Guo & Wei, 2011).	496	2010	Xi'an hi-tech hospital of shaanxi province	Combined spinal-epidural analgesia	-	21.82%(n = 108)	1. (1) Voluntary; (2) No contraindications for vaginal childbirth; (3) No anesthesia contraindications; 2. (1) Persistent occipital transverse position/occipital posterior position 41.67% (n = 45); (2) Fetal distress 27.78% (n = 30); (3) relative cephalopelvic disproportion 20.37% (n = 22); (4) fetal macrosomia 8.33% (n = 9); (5) Cervical factors 1.85% (n = 2)
Xuefeng Wu (Wu, 2011).	2191	2009	Henan yuzhou maternal and child health care hospital	Epidural analgesia	-	8.17%(n = 179)	1. (1) Voluntary; (2) No obstetric complications; (3) No anesthesia contraindications; 2. (1) Stagnation in the active stage 39.11% (n = 70); (2) persistent occipitoposterior position 34.08% (n = 61); (3) Fetal distress 10.61% (n = 19); (4) descending of fetal head stagnation 5.03% (n = 9); (5) Stagnation in the second stage 4.47% (n = 8); (6) Social factors 3.91% (n = 7); (7) signs of uterine rupture 1.68% (n = 3); (8) Umbilical cord prolapse 1.12% (n = 2);
Zao Pang (Pang & Wei, 2012).	64	2012	Guangxi liuzhou maternal and child health care hospital	Combined spinal-epidural analgesia	-	23.44% (n = 15)	1. (1) No contraindications for block inside vertebral canal; (2) No obstetric pathological factors; 2. (1) Persistent occipital posterior position (second stage stagnation) 66.67% (n = 10); (2) Fetal distress was 13.33% (n = 2); (3) Stagnation in the active stage 13.33% (n = 2); (4) Cervical edema 6.67% (n = 1);
Wenkai Wang (Wang & Ye, 2012).	328	2011	Guangdong huizhou first maternity and child care	Combined spinal-epidural analgesia	-	17.38% (n = 57)	1. (1) Voluntary; (2) No complications; 2. (1) Abnormal fetal position 38.60% (n = 22); (2) Fetal distress 28.07% (n = 16); (3) Stagnation in the active stage 22.80% (n = 13); (4) Secondary dystrophy 10.53% (n = 6);
Baorong Luo (Luo & Wu & Li, 2013).	186	2011	Beijing haidian district maternal and child health care center	Epidural analgesia	-	-	2. (1) Anesthesia failure 15.59% (n = 29); 3. (1) Success group and failure group: times of remedial administration (+); (2) Duration of analgesia (+)
Junneng Luo, et al (Luo & Zhang & Bao, 2013).	658	2010 - 2012	Guangdong dapu county people's hospital		44.83% (n = 295)	-	1. (1) Vaginal childbirth 71.88% (n = 473); (2) Cesarean section: 28.15% (n = 185);
Yingyong Fu, et al (Fu & Xu & Yang, 2014).	218	2011 - 2012	Shandong liaocheng city dongchang fu people's hospital	Epidural analgesia	-	-	2. (1) Anesthesia failure 11.93% (n = 26); 3. (1) Success group and failure group: general information (-); (2) Depth of tube and scale on skin (-); (3) Uterine and oral conditions during labor analgesia (-); (4) VAS score before analgesia (-); (5) VAS score after 30 minutes of analgesia (-); (6) Arterial pressure (+);

							(7) Times of remedy administration (+); (8) Duration of analgesia (+)
Cheng Li, et al (Li & Li, 2014).	96	2012 - 2014	Jilin yanbian hospital	Epidural analgesia	-	-	2. (1) Anesthesia failure 17.71% (n = 17); 3. (1) Success group and failure group: times of remedial administration (+); (2) Duration of analgesia (+)
Qiaolin Su, et al (Su & Li & Wu, 2014).	200	2012 - 2013	guangdong province Shenzhen city maternity and child care	Epidural analgesia	-	-	2. (1) Anesthesia failure 15.00% (n = 30); 3. (1) Success group and failure group: Age, height and gestational age (+); VAS score after 30min of analgesia (-); Duration of analgesia (+); Additional analgesia times (+)
Leilei Cheng, et al (Cheng, 2014).	60	2013 - 2015	Zhejiang dongyang people's hospital	Epidural analgesia	-	-	2. (1) Anesthesia failure 16.67% (n = 10); 3. (1) Success group and failure group: Mean arterial pressure (+); Duration of analgesia (+); Remedial analgesic time (+)
Huanwei Jiang, et al (Jiang & Yang & Tu, 2016).	952	2015	Guangdong shenzhen nanshan district maternal and child health care	Epidural analgesia	-	15.12% (n = 144)	1. (1) Voluntary; (2) No contraindications for vaginal childbirth; (3) No anesthesia contraindications; (4) ASA I ~ II level; 2. (1) The epidural catheter strayed into the blood vessel 32.64% (n = 47); (2) Epidural catheter displacement 25.69% (n = 37); (3) Unilateral block or incomplete block 21.53% (n = 31); (4) The epidural catheter was blocked by blood clots 9.03% (n = 13); (5) The epidural catheter was discounted 6.25% (n = 9); (6) Epidural catheter prolapse 3.47% (n = 5); (7) Dural puncture 1.39% (n = 2)
Benjin Mu, et al (Mou, 2017).	127	2015 - 2017	Sichuan chengdu Pi district maternity and child care	Epidural analgesia	-	-	1. (1) 1. No contraindication of vaginal childbirth; (2) No anesthesia contraindications; 2. (1) Anesthesia failure 11.81% (n = 15); 3. (1) Success group and failure group: analgesia duration (+); (2) Pain score after analgesia for 30 min (+); (3) Times of relief analgesia (+)
Haifei Zhao, et al (Zhao, 2017).	100	2013 - 2014				-	1. (1) 1. No contraindication of vaginal childbirth; (2) No anesthesia contraindications; 2. (1) Anesthesia failure 22.00% (n = 22);

Note: (+) Statistical significance, (-) No statistical significance