ASSESSMENT OF MATERNAL AND PERI -NATAL MORBIDITY IN VAGINAL AND CESAREAN DELIVERY AMONG A SAMPLE OF WOMEN DELIVERING AT AIN SHAMS UNIVERSITY MATERNITY HOSPITAL

Thesis

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List of Abbreviations

Abbreviation	Meaning
ACOG	American College of Obstetricians and Gynecologists
ASA	American society of anthologist
AT	Antithrombin
AVD	Assisted vaginal delivery
CS	Cesarean sections
CI	Confidence interval
CBP	Congenital brachial palsy
DVT	Deep venous thrombosis
ECS	Elective cesarean section
EmCS	Emergency cesarean section
FBS	Fetal brain stimulation
FHR	Fetal heart rate
Gas	General anesthetics
HR	Heart rate
Instr VD	Instrumental vaginal delivery
ICU	Intensive Care Unit admission.
LA	Levobupivacaine
MMH	Mater Mothers Hospital
NICU	Neonatal Intensive Care Unit
PAC	Patient Advisory Committee
PCEA	Patient-controlled epidural analgesia .
PCIA	Patient-controlled IV opioid analgesia.
PPh	Postpartum hemorrhage.
PE	Pulmonary embolism
RAs	Regional anesthetics
RR	Relative risk
RDS	Respiratory distress syndrome
SCBU	Special care baby unit
SUI	Stress urinary incontinence
SGH	Subgleal hemorrhage
SSI	Surgical site infections
US market	United states market
VE	Vacuum extraction
VBACs	Vaginal births after cesarean
VTE	Venous thromboembolism
WHO	World Health Organization

INTRODUCTION

The use of CS has increased dramatically worldwide in the last decades particularly in middle and high-income countries, despite the lack of evidence supporting substantial maternal and perinatal benefits with CS rates higher than a certain threshold, and some studies showing a link between increasing CS rates and poorer outcomes ***(Lumbiganon et al., 2010)*** .

Women undergoing caesarean deliveries, either intrapartum or elective, independent of demographic and clinical characteristics or experience of pregnancy had double the risk for severe maternal morbidity and mortality (including death, hysterectomy, blood transfusion, and admission to intensive care) and up to five times the risk of a postpartum infection compared with women undergoing vaginal delivery ***(Villar José, 2007).***

Maternal deaths have been described as the tip of the iceberg and maternal morbidity as the base. For every woman who dies of pregnancy-related causes, 20 or 30 others experience acute or chronic morbidity ***(Reichenheim, 2009).***

The WHO has considered a population-based rate of c-sections between 10 and 15%, as an ideal rate that was associated with a notable decline in maternal mortality ratio (MMR) and neonatal mortality rate (NMR) ***(WHO, 2016).***

Some countries have experienced remarkable increases. Egypt, Turkey, Dominican Republic, Georgia and China have all had over 30 percent points increase in their CS rates over the last 24 years. For example, in Egypt, according to the latest data, more than half of all women give birth by CS without much difference between urban and rural areas ***(Ministry of Health and Population [Egypt), 2015).***

AIM OF WORK

This thesis aim to compare the maternal and peri-natal morbidity between vaginal and caesarean deliveries either emergency or elective among a sample of women delivering at Ain Shams University Maternity Hospital over a period of 6 months.

INCIDENCE OF THE CESAREAN SECTION

Cesarean section is the most common major obstetric surgery and the oldest operation in the field of abdominal surgery. Until the 17th century, cesarean section was exclusively lethal operation for the mother, performed to save the newborn's life from dead or dying mother. Although the term 'cesarean' was long believed to derive from the Roman emperor Gaius Julius Caesar (100-44 B.C.), according to legend born by cesarean section, it is now considered quite unlikely because his mother was found to have lived for years after the delivery. In the first half of the 19th century, maternal mortality after cesarean section was 60%-100%; at the beginning of the 20th century, cesarean section was associated with 25% maternal mortality and 24% neonatal mortality, mostly due to sepsis or exsanguination ***(Kulas et al., 2013).***

The operating technique has developed according to professional achievements depending on improvements in asepsis, abdominal surgery, anesthesia, and transfusion medicine. Dörffler made a breakthrough in the operating techniques in 1929, when he published a description of the cesarean section technique, which has been used down to the present in some hospitals. Dörffler unified Pfannenstiel laparotomy and Kerr hysterotomy, and create a new technique" sectio caesarea transperitonealis isthmica in situ sec. Dörffler",

which then considerably reduced the overall maternal mortality while enabling future deliveries after cesarean section either by repeat cesarean section or by vaginal delivery ***(Kulas et al., 2013).***

For many years, the incidence of the procedure was stable (3-5%) yet since 1960s, the rate of cesarean section was rising steadily reaching (20-25%) in the late 1980s ***(EL-Mahallawy et al., 2006).*** Between 1989 and 1996 the overall rate of cesarean delivery in the United States declined to reach 20.7 percent ***(Shaaban, 2007).*** This decline was due to increasing enthusiasm about vaginal birth after prior cesarean (VBAC). After the safety of such attempt was repeatedly reported and endorsed by the American College of Obstetrician and Gynecologist (ACOG), however, the trend has again shown a slight rise after it has been reported that trial of VBAC is not always safe to the mother and fetus ***(Shaaban, 2007).***

The use of CS has increased dramatically worldwide in the last decades particularly in middle and high-income countries, despite the lack of evidence supporting substantial maternal and perinatal benefits with CS rates higher than a certain threshold, and some studies showing a link between increasing CS rates and poorer outcomes ***(Lumbiganon et al., 2010).***

The reasons for this increase are multifactorial and not well-understood. Changes in maternal characteristics and

professional practice styles, increasing malpractice pressure, as well as economic, organizational, social and cultural factors have all been implicated in this trend ***(Mylonas & Friese, 2015).*** Over the past decades, the unprecedented and steady rise in the rates of CS have led to increased research, debate and concern among healthcare professionals, governments, policy-makers, scientists and clinicians ***(Mi et al., 2014).***

The latest available data show that almost **1** in **5** women in the world now give birth by CS ***(Betrán et al., 2014).*** A nationally-representative data on CS rates between 1990 to 2014 collected and calculated regionally and subregionally by **Betrán et al** according to the latest data from 150 countries, currently 18.6% of all births occur by CS, ranging from 6% to 27.2% in the least and most developed regions, respectively. Latin America and the Caribbean region has the highest CS rates (40.5%), followed by Northern America (32.3%), Oceania (31.1%), Europe (25%), Asia (19.2%) and Africa (7.3%). Based on the data from 121 countries, the trend analysis showed that between 1990 and 2014, the global average CS rate increased 12.4% (from 6.7% to 19.1%) with an average annual rate of increase of 4.4%. The largest absolute increases occurred in Latin America and the Caribbean (19.4%, from 22.8% to 42.2%), followed by Asia (15.1%, from 4.4% to 19.5%), Oceania (14.1%, from 18.5% to 32.6%), Europe (13.8%, from 11.2% to 25%), Northern America (10%, from 22.3% to 32.3%) and Africa (4.5%, from 2.9% to 7.4%). Asia and Northern America were the regions with the highest and lowest

average annual rate of increase (6.4% and 1.6%, respectively) ***(Betrán et al., 2014).***

Countries with the highest CS rates in each region are Brazil (55.6%) and Dominican Republic (56.4%) in Latin America and the Caribbean, Egypt (51.8%) in Africa, Iran and Turkey in Asia (47.9% and 47.5%, respectively), Italy (38.1%) in Europe, United States (32.8%) in Northern America, and New Zealand (33.4%) in Oceania ***(Betrán et al., 2014).***

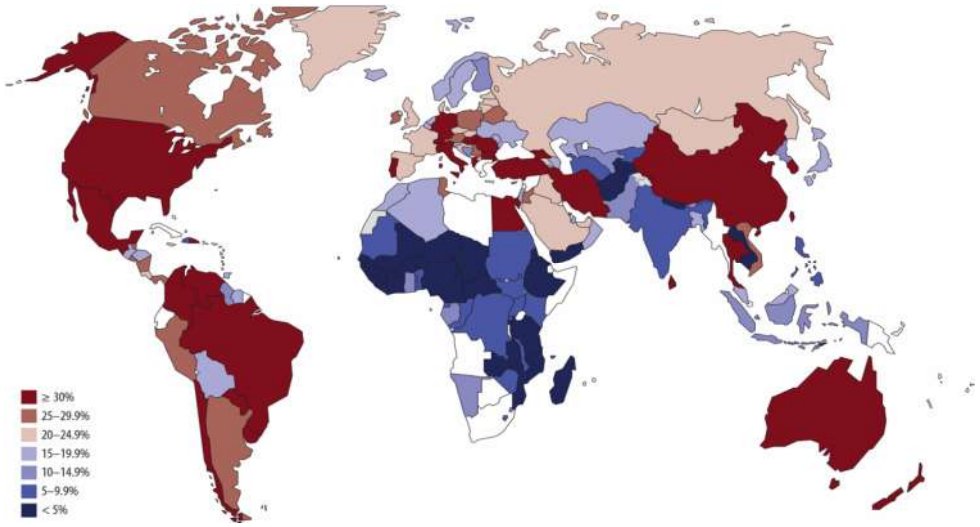

Figure (1): Latest available data on caesarean section rates by country ***(Betrán et al., 2014)***

Some possible reasons for increasing CS rates are repeatedly reported in studies from many countries such as fear of pain; concerns about genital modifications after vaginal delivery; misconception that CS is safer for the baby; the convenience for health professionals and also for the mother and family; fear of medical litigation and lower tolerance to any

complications or outcomes other than the perfect baby ***(Hellerstein et al., 2015).***

Other cultural factors are more country-specific. For example, in China, choosing the date of the baby's delivery on the basis of luck and fate for the future of the baby by some people is one of the explanations for scheduling a CS ***(Mi et al., 2014).***

On the other hand, several European countries have managed to control their CS rates over time. It is noteworthy that Finland has one of the lowest increases not only in Europe but among all countries included in this analysis (from 13.5% to 14.7%). Iceland and Norway also present a very small increase and Sweden, despite the slightly higher rise, has a CS rate of 16.2% in 2011. Although there will certainly be differences in population characteristics such as the prevalence of obesity, the proportion of nulliparous or of older women or multiple births, these differences are unlikely to explain the wide variations in CS rates in European countries. Factors associated with higher rates of vaginal deliveries may include strict policies on "maternal request" CS, cultural or social pressure, differences in the legal framework for medical litigation and strategies favouring home births or a midwifery-led approach to births ***(Raisanen et al., 2014; Betrán et al., 2014).***