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Abortion and Preterm Birth: Why Medical Journals Aren't Giving Us The Real Picture

By Byron Calhoun, M.D.

FOREWORD

In “Abortion and Preterm Birth: Why Medical Journals Aren’t Giving Us The Real Picture,” Dr. Byron Calhoun reviews the pertinent literature concerning the risk factors for preterm birth and concludes that medical journals, and particularly some authors, undervalue or even minimize the link between abortions (either spontaneous or induced) and subsequent risk of preterm birth.

Dr. Calhoun believes that everyone involved in women’s health should be aware of the correlation between previous abortions and preterm birth, and that women should have access to appropriate counseling on the matter. Preterm birth is of paramount importance because the long-term disabilities it causes and the costs it incurs place an onerous burden on families, doctors, and society.

Although it is not possible to distinguish between the relative effects of spontaneous versus induced abortion on preterm birth from current studies, researchers should not minimize the overall undisputed relationship between abortion and preterm birth. Doing so has thus far resulted in inaccurate conclusions.

I believe that Dr. Calhoun’s conclusions are highly appropriate and that the studies he evaluates are the most important in the English-language scientific literature. Policy makers would do well to enact appropriate policies according to his analysis.

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Abortion and Preterm Birth: Why Medical Journals Aren't Giving Us The Real Picture

By Byron Calhoun, M.D.

ABSTRACT

Preterm births lead to some 3 million deaths worldwide every year. A 2012 report from the World Health Organization finds that 15 million babies—one in ten—are born prematurely every year; that the rates of preterm birth are increasing in almost all countries with reliable data, and that prematurity is the leading cause of newborn deaths and the second leading cause of death after pneumonia in children under the age of 5. The same report laments that too little is known about the causes of preterm birth. This briefing paper helps shed light on the cause of preterm birth by examining a disconcerting phenomenon, that is, that many medical papers appearing in peer reviewed journals have failed to mention their most important results: the link between preterm births and abortion. This briefing paper demonstrates how such an important medical fact is being underreported, giving examples from the abundant literature showing how abortion increases the risk of preterm birth, most notably, an important 2011 Chinese study (by Liao et al). Selective reporting of results in medical journals reflects the tendency of the medical community to disregard data showing an increased risk of preterm birth after an abortion. Yet such conclusions can be drawn not only from the Liao et al, 2011 paper but from 127 other published studies demonstrating a statistically significant risk of preterm birth after an abortion (see Appendix A).

INTRODUCTION

Preterm birth plagues modern society with over 3 million deaths worldwide annually. Combined with low birth weight, preterm births are estimated to cost more than 100 million disability adjusted life-years.¹ The incidence of preterm delivery before 37 completed weeks of gestation ranges from 6-8 percent in Europe, Australia, and Canada^{2,3} to 9-12 percent in Asia, Africa, and the United States (US).^{4,5} There has been no change over the last three decades, and in fact some authors believe the trend may be increasing.⁵ In the US the Low Birth Weight (LBW newborn under 2500 grams or 5 ½ lbs) delivery rate in 2002 (with most Low Birth Weight infants being under 35 weeks gestation) increased from 6.8 percent in 1985 to 7.8 percent.⁶ This is the highest rate in over 30 years.⁶ The rate of increase of newborns born at less than 32 weeks gestation, Early Preterm Births (EPB), in single fetus pregnancies accelerated by 5 percent since the 1980s compared to the overall increase of 15 percent in preterm deliveries.⁶ The majority of the increased Early Preterm Birth appears as a result of multiple gestations due to assisted reproduction.⁶ The incidence of

newborns born under 1500 gms or roughly 3 lbs 3 oz, Very Low Birth Weight (VLBW), was 1.46 percent, which reflected little change from the 1.44 percent rate of 2001.⁶

Previous articles by the author and others began exploring the association between preterm birth and induced abortion in 2003.^{7,8} Rooney and Calhoun reviewed studies from 1966-2003 and found 49 studies with a statistically significant risk of preterm birth after an abortion.⁸ Indeed, the impact of abortion on preterm birth has been known in the international community since at least 1973.⁹ The Hungarian government was warned about the evidence of an abortion-preterm birth link in a 1973 article:

A recent article in *MAGYAR HIREK*, a journal sponsored by the government, contained detailed explanations for the new legislation. The columnist referred extensively to the research of Jenő Sarkány, who had presented evidence considered conclusive by the government, that, artificially induced abortions predisposed to premature births in subsequent pregnancies. His study of perinatal and infant morbidity statistics revealed a striking increase in physically and/or mentally handicapped babies among those born to mothers who had had a therapeutic abortion previously. Apparently, this unforeseen social burden outweighed the benefits on economic pressures of free abortion, and the government, while emphasizing the unchanged importance of population control, felt compelled to repeal its abortions laws.⁹

Modification to access, mandatory counseling, and other social factors reduced the abortion rate in Hungary from a high of 57 percent of pregnancies in 1969 to 38 percent in 2000.¹⁰

Prompted by the overwhelming findings on the medical effects of abortion on the increased incidence of preterm birth, Calhoun et al, 2007 made the public health argument for the United States from the 59 statistically significant studies (up to 2005) that induced abortion increased the incidence of preterm birth by approximately 31.5 percent.¹¹

Calhoun et al, 2007 calculated, based on the 31.5 percent increased risk associated with abortion, that the concomitant hospital costs due to prematurity were over \$1.2 billion per year in the US.¹¹ These hospital expenses did not include any of the significant costs after discharge to home related to the morbidity due to complications associated with prematurity: cerebral palsy, retinopathy, bronchopulmonary dysplasia, deafness, and early intervention programs. To date, no one has disputed with the authors these estimates of abortion's associated increased risk of prematurity (31.5 percent) or its impact on healthcare dollars.

The most remarkable evidence at the time are the 127 published peer review articles all documenting an increased risk of preterm birth associated with induced abortion (see appendix A). Yet, the leading medical organizations for women's healthcare, including the American College of Obstetricians and Gynecologists (ACOG) in their on-line Compendium for 2011, refuse to acknowledge the increased associated risk of preterm labor or the substantial body of literature raising this concern.¹²

RECENT LITERATURE

The two most powerful recent studies were published in 2009: the meta-analyses by Swingle et al, 2009 and Shah et al, 2009.^{13,14} Swingle et al, 2009 performed a meta-analysis of literature from 1995-2007.¹³

The paper's authors included two pro-abortion and two pro-life authors per their admission.¹³ They believed this would reduce any bias. They searched 7,891 titles, 349 abstracts, and 130 papers.¹³ After reading the papers and applying their data inclusion criteria, the authors found 30 induced abortion and 26 spontaneous abortion papers. They analyzed data from 12 induced abortion and 9 spontaneous abortion papers. Four of the 12 studies on induced abortion had data available for common odds ratios to use in calculations for induced abortion at less than 32 weeks. The authors demonstrated a 64 percent increased risk of preterm birth at less than 32 weeks with just a single induced abortion.¹³

The Swingle et al, 2009 study also found an increased risk of preterm birth associated with spontaneous abortions.¹³ Out of the 9 studies available for common odds ratios for preterm birth with spontaneous abortions, seven had data for use in calculations. The authors found a 43 percent increase in the preterm birth rate with one miscarriage and an increase of 227 percent with more than two spontaneous abortions.¹³ In a meta-analysis of this kind, such findings are not unexpected. Preterm birth following an induced abortion is no way related to preterm birth with spontaneous abortions. It must be noted that the etiologies of spontaneous miscarriage are significantly different from induced abortions, which are generally elective. The very medical reasons women miscarry spontaneously may also predispose them to preterm birth. Further, spontaneous abortion is not an avoidable epidemiological risk factor for preterm birth; it is a tragic outcome of a wanted pregnancy for most women. Therefore, to compare spontaneous abortion's relationship to preterm birth with the relationship of preterm birth to induced abortion is hardly appropriate.

The second study from 2009 is the large meta-analysis by Shah et al, 2009.¹⁴ The authors screened 834 papers and excluded 765 for lack of data and objectives. They retrieved 69 citations and again excluded 32 for lack of data.¹⁴ Of the 37 remaining studies, there were 18 studies of Low Birth Weight (LBW), 22 studies for preterm birth and 3 studies of Small for Gestational Age (SGA).¹⁴ Out of the 18 studies of low birth weight there were 280,529 patients available to compare no induced abortions versus one abortion prior to first pregnancy. Shah et al, 2009 found an increased risk of preterm birth of 35 percent in patients with only one abortion.¹⁴ Five out of the 18 studies had more than two induced abortions and included 49,347 patients. The study found an even higher increased risk of 72 percent of preterm birth for more than two abortions. These findings demonstrate the important epidemiological principle of a dose related effect by a procedure or action: the more abortions a woman has prior to the first pregnancy, the higher the risk of preterm birth.¹⁴

Examining the 22 studies focusing on preterm birth exclusively, including 268,379 patients, the authors found an increased risk of preterm birth of 36 percent.¹⁴ In 7 out of the 22 studies with more than two induced abortions and including 158,421 patients, the authors found an increased risk of preterm birth of 93 percent.¹⁴ These are striking findings available in a large meta-analysis that allows the inherent confounding variables to be controlled for thanks to the large numbers of patients in the database. The authors also examined the effects of abortion on small for gestational age infants and found no influence with either one or more induced abortions.¹⁴

Finally, 2011 remained a busy year for abortion and preterm birth studies. There were three informative studies on preterm birth and induced abortion: one database-linked¹⁵ and two cohort studies.^{16,17} We will concentrate on the database-linked study¹⁵ and one of the cohort studies.¹⁶ The Di Renzo et al, 2011 database-linked study was a multicenter, observational, retrospective and cross-sectional study of preterm birth and vaginal deliveries in 9 centers in Italy.¹⁵ Di Renzo et al, 2011 eliminated cesarean section deliveries

in their sample analysis due to the inability to control for different reasons for performing cesarean delivery in disparate regions of the country. The records were linked to patient outcomes reported in the central database registry. The investigators properly performed a power analysis prior to beginning the research to determine the number of patients needed to reach statistical significance in their particular population. They estimated they needed 6,000 women with vaginal deliveries to determine a difference in the preterm birth rate in their population. Di Renzo et al, 2011 used a baseline preterm birth rate of 5 percent utilizing 20 variables in their multivariate regression analysis of their delivering patients. Their sample included 7,634 women delivering vaginally from September-December 2008 at the 9 medical centers.¹⁵ Analysis of the data included 15 confounding variables evaluated as co-factors for preterm birth including: Body Mass Index (BMI), age, medical co-morbidities, tobacco abuse, previous cesarean section, and abortion. The authors did not separate out when the abortions occurred with regard to the incident pregnancy studied (i.e. prior pregnancy/pregnancies all ending in abortion or abortion after full-term pregnancy) or, by the number of abortions each woman might have experienced. What Di Renzo et al, 2011 found was an increased risk of preterm birth of 95 percent with any previous abortion(s) no matter when the abortions occurred in the patient's reproductive history.¹⁵ Interestingly, they also found an independently increased risk of preterm birth related to: BMI greater than 25 with an increased risk of 66 percent and with a previous cesarean section a 290 percent increased risk of preterm birth.¹⁵

The strengths of the Di Renzo et al, 2011 study include: a large, linked database with power/multivariate analysis; increased preterm birth risk in *all* patients with previous abortions as an independent risk factor regardless of when the abortion occurred in relation to the incident pregnancy; i.e. the authors found no "protective effect" of a previous term birth prior to the incident pregnancy studied.

The weaknesses of the Di Renzo et al, 2011 study included: a failure to separate out abortion timing prior to incident pregnancy and a lack of analysis for multiple abortions, making it impossible to discuss the "dose effect" (the more abortions prior to first pregnancy, the higher the risk of preterm birth).

THE LIAO ET AL STUDY

The most interesting findings in 2011 regarding preterm birth and induced abortion are found in the Liao et al, 2011 study done in China.¹⁶ This study purported to evaluate the effects of repeated first trimester medical abortions with mifepristone on preterm birth in subsequent pregnancies. This was a cohort study from 7 hospitals in Chendu, China, including 4 years of study from January 2006 to December 2009. The study was interview-based with delivery outcomes available in 18,323 (93.8 percent) women out of the 19,527 originally enrolled in the study group to analyze for preterm birth. The women were then stratified further into the two groups with regard to whether or not they had an abortion, or abortions, prior to the incident pregnancy to evaluate for preterm birth. There were: 7,478 women with complete follow up in the abortion group out of the original 7,558 (98.9 percent) and 10,546 women with complete follow up in the no abortion group out of the original 10,681 (98.9 percent).

The nulliparous women, or women who had never previously delivered a baby, with abortions were then divided into 3 subsequent comparison groups for preterm birth with a further division by the type of abortion (medical or surgical) versus no abortions: nulliparous women with one or more first trimester medical abortions (mifepristone); nulliparous women with surgical elective abortions; and nulliparous women with no previous abortions.

Within the two abortion groups (abortion/no abortion groups) the following numbers of women with abortion groups were found for the analysis: in the no abortion group of women there were 332 spontaneous abortions (332/10,546 or 3.15 percent). No data or information was available in the paper on management of these spontaneous abortions; i.e. whether the spontaneous abortions were managed without any therapy (totally spontaneous), medical therapy alone, surgical therapy alone, or combined medical/surgical therapy. In the abortion group of women there were: 1,769 women with one medical abortion (1,769/7,468 (24 percent)), 2,900 women with one surgical abortion; (2,900/7,468 (38 percent)), 553 women with more than one medical abortion (553/7,468 (7.4 percent)), 1,088 women with more than one surgical abortion(1,088/7,468 (15 percent)), and 1,168 women with medical/surgical abortions(1,168/7,468 (16 percent)).

There was a fairly even distribution of all types of abortions found in the population experiencing abortion as well as a significant number of abortions overall in the studied population. The findings regarding preterm birth with surgical and/or combined surgical-medical abortions were as follows: a 40 percent increase in the preterm birth rate with one surgical abortion, a 62 percent increase in the preterm birth rate with more than 3 surgical abortions (dose effect), and a 218 percent increase in the preterm birth rate with medical and surgical abortions.

These clinical findings demonstrate that surgical abortion prior to the first incident pregnancy is associated with preterm birth, but most importantly multiple surgical abortions show a concomitant increase in preterm birth rates demonstrating a “dose effect” by multiple surgical abortions. Finally, a history of combined surgical-medical abortion is even more serious in its association with an increased preterm birth risk of over 200 percent.

The strengths of the Liao et al, 2011 paper include: a large group of patients (18,323); large numbers of abortions in several categories (surgical/medical/both); and a demonstration of an increased risk of preterm birth with surgical abortions and combined surgical/medical abortions.

The weaknesses of the 2011 Liao et al paper include: not sharing the most startling clinical findings regarding abortion: a 40 percent increase in the preterm birth rate with one surgical abortion, a 62 percent increase in the preterm birth rate with more than 3 surgical abortions (dose effect), and a 218 percent increase in the preterm birth rate with medical and surgical abortions.

In the abstract, the authors failed to mention the need for surgical curettage in 20 percent (1 in 5 patients) of medical abortions to complete the abortions, associated with a 361 percent increased risk of delivery at less than 32 weeks. Finally, the study was an interview study and not data-linked.

In spite of these significant clinical findings, the Liao et al, 2011 abstract trumpeted that the most important medical conclusion in the abstract was “[a] history of multiple first trimester mifepristone-induced abortions is not associated with a higher risk of preterm delivery among singleton births in the first subsequent pregnancy.”

The authors’ statement hides the most staggering of the findings of the Liao et al, 2011 paper which were:

- 20.3 percent of patients with medical abortion needed a post-abortion surgical suction curettage to complete the abortion process

- The increased risk of 69 percent of preterm birth in women with medical abortion at less than 7 gestational weeks with curettage
- The increased risk of delivery at less than 32 weeks of over 360 percent for women who had medical abortion with curettage (20 percent of patients) at less than 7 gestational weeks

The authors did not report any of these findings in the abstract.

CONCLUSIONS

According to a 2012 World Health Organization report, fifteen million babies are born prematurely every year. The report finds that more than 1 in 10 babies are born preterm, and more than one million children die each year due to complications of preterm birth. Survivors often face a lifetime of disability, including learning disabilities, visual and hearing problems.¹⁸ And yet, despite the extent of the crisis, the same WHO report concludes that “Very little is known about the causes and mechanisms of preterm birth, and without this knowledge, preterm birth will continue.” One reason is that the link between preterm birth and abortion has been buried in medical literature. Indeed, it was ignored altogether in the 2012 WHO report. Without swift attention to the connection between abortion and preterm birth, millions of children will continue to die, and millions of families will continue to suffer, needlessly.

Our brief review of the most recent papers demonstrates once again the overwhelming evidence to support the association of preterm birth with abortion prior to the incident pregnancy. The paper by Di Renzo et al, 2011 reports an increased risk of preterm birth of 95 percent no matter when the abortion occurred in the patient’s reproductive life. The paper by Liao et al, 2011 highlights the problems in interpreting the abortion and preterm birth literature. The authors simply buried the most important clinical and statistical findings in the paper about medical abortions.

Few seem to acknowledge the link between abortion and preterm birth. Liao et al, 2011 is but one example of reporting bias that pervades the study of abortion and preterm birth. Who are the victims here? The victims are not researchers. Researchers will continue to actively study this topic, whether or not they choose to acknowledge the implications of the data. The victims of this irresponsible journalism are the millions of women, who have not been able to move beyond their abortion(s), suffered a preterm birth, and found very little assistance from the medical community. Continued efforts to deny the significant risk of preterm birth after only a single abortion are dishonest, disingenuous, and disrespectful. Moreover, such efforts have, and will become even less effective as more women who experience preterm birth after an abortion begin to come forward. These women are everywhere and their voices echo in honestly collected and reported data.

POLICY IMPLICATIONS AND RECOMMENDATIONS

Public policy in women’s health must acknowledge the evidence of 127 peer-reviewed papers demonstrating a statistically significant increased risk of preterm birth after abortion. Further, this overwhelming finding on the medical effects of abortion on the increased incidence of preterm birth by

Calhoun et al, 2007 made the public health argument that induced abortion increased the overall incidence of preterm birth by approximately 31.5 percent.¹¹

In that same paper, we also calculated, based on the 31.5 percent increased risk associated with abortion, that the concomitant hospital costs due to prematurity were over \$1.2 billion per year in the US.¹¹ Legislators, public health policy officials, women's health advocates, and women need to be informed of the preterm birth costs in both dollars and human suffering. Policies should be fashioned by each country's department or ministry of health to ensure proper information on the significant risks of abortion and to decrease abortion rates.

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ABOUT THE AUTHOR

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Dr. Calhoun has authored 68 peer review articles in the obstetric and gynecologic literature, presented over 100 scientific papers, participated in over 40 research projects, and has published numerous articles on ethical issues in obstetrics and gynecology.

Dr. Calhoun is a 1979 Distinguished Graduate of the United States Air Force Academy and graduated from the University of Iowa Medical School with an MD in 1983. He completed his residency in OB/GYN at the University of Missouri-Columbia in 1987 and finished a Fellowship in Maternal-Fetal Medicine at the Oregon Health Sciences University in 1989. Dr. Calhoun is diplomate board certified by the American Board of Obstetrics and Gynecology in general Obstetrics and Gynecology and in the sub-specialty of Maternal-Fetal Medicine. He and his wife, Kathryn, have 5 children.

APPENDIX A: Studies Linking Abortion and Preterm Birth

This Appendix lists 127 significant published studies reporting that suction abortion and other methods elevated future risk of premature delivery or low birth weight.

1960s

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1970s

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1980s

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TWENTY (20) STATISTICALLY SIGNIFICANT ABORTION/ VERY PRETERM BIRTH AND ABORTION/ VERY LOW BIRTH WEIGHT STUDIES

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