Journal of Autoimmunity 79 (2017) 17–27

Contents lists available at ScienceDirect

Journal of Autoimmunity

journal homepage: www.elsevier.com/locate/jautimm

Impact of systemic lupus erythematosus on maternal and fetal outcomes following pregnancy: A meta-analysis of studies published between years 2001–2016

Pravesh Kumar Bundhun, MD [a], Mohammad Zafooruddin Sani Soogund, MBBS [b], Feng Huang, MD [a, *]

[a] Institute of Cardiovascular Diseases, The First Affiliated Hospital of Guangxi Medical University, Nanning, Guangxi, 530021, PR China
[b] Guangxi Medical University, Nanning, Guangxi, 530027, PR China

ARTICLE INFO

Article history:
Received 11 January 2017
Received in revised form
8 February 2017
Accepted 20 February 2017
Available online 28 February 2017

Keywords:
Systemic lupus erythematosus
Pregnancy
Women
Fetal outcomes
Maternal outcomes
Spontaneous abortion
Premature infants
Infant congenital defects

ABSTRACT

Background: Previous research has already shown systemic lupus erythematosus (SLE) to have severe consequences on pregnancy outcomes. However, insufficient number of participants, which were mainly limited to one particular region, limited outcomes analyzed and lack of evidence based analysis to support systematic reviews of the literature were the limitations observed. Therefore, by improving these limitations, we aimed to systematically show the impact of SLE on maternal and fetal outcomes following pregnancy.

Methods: The Cochrane Database of Randomized Controlled Trials, EMBASE and Medline databases were carefully searched for appropriately relevant English language studies comparing maternal and/or fetal outcomes (endpoints) in pregnant women with and without SLE. With the presence of discontinuous data, risk ratios (RR) and 95% confidence intervals (CI) were calculated and the final analysis was carried out by RevMan 5.3 software.

Results: Eleven studies with a total number of 529,778 participants were included. This current analysis showed cesarean operation to be significantly higher in patients with SLE (RR: 1.85, 95% CI: 1.63–2.10; P = 0.00001). Pre-eclampsia and hypertension also significantly affected women with SLE, (RR: 1.91, 95% CI: 1.44–2.53; P = 0.00001) and (RR: 1.99, 95% CI: 1.54–2.56; P = 0.00001) respectively. In addition, spontaneous abortion, thromboembolic disease, and post-partum infection were also significantly higher in the SLE subgroup (RR: 1.51, 95% CI: 1.26–1.82; P = 0.0001), (RR: 11.29, 95% CI: 6.05–21.07; P = 0.00001) and (RR: 4.35, 95% CI: 2.69–7.03; P = 0.00001) respectively.

Live birth significantly favored infants who were born from mothers without SLE (RR: 1.38, 95% CI: 1.14–1.67; P = 0.001). Significantly higher premature birth and infants classified as 'small for gestational age' were associated with SLE, (RR: 3.05, 95% CI: 2.56–3.63; P = 0.00001) and (RR: 1.69, 95% CI: 1.53–1.88; P = 0.00001) respectively. In addition, SLE was significantly associated with increased number of infants that required neonatal intensive care unit and infants with congenital defects (RR: 2.76, 95% CI: 2.27–3.35; P = 0.00001) and (RR: 2.63, 95% CI: 1.93–3.58; P = 0.00001) respectively.

Conclusions: This meta-analysis has shown SLE to indeed have a high impact on maternal and fetal outcomes following pregnancy. Therefore, special treatments and care should be allocated to those women in order to manage adverse outcomes that might follow, and to improve successful normal delivery, term infants and to reduce congenital abnormalities in infants who were born from mothers with SLE.

Abbreviations: SLE, systemic lupus erythematosus; RR, risk ratios; CI, confidence intervals.

* Corresponding author.
E-mail addresses: pravesh021@gmail.com (P.K. Bundhun), zaf9@ymail.com (M.Z.S. Soogund), huangfeng7925@163.com (F. Huang).

http://dx.doi.org/10.1016/j.jaut.2017.02.009
0896-8411/

Contents

1. Introduction

Systemic Lupus Erythematosus (SLE) is often a life-threatening autoimmune disorder that affects many women of child-bearing ages [1]. Previous research has already shown SLE to have severe consequences on pregnancy outcomes [2]. However, several limitations were observed in those studies: insufficient number of participants [3], which were mainly limited to one particular region [4], and limited outcomes which were analyzed [5].

Recently, with the drastic improvements in hospital care, newly published studies have given rise to controversial issues when improved pregnancy outcomes were observed in women with SLE [6]. Nevertheless, further limitation was observed with reference to the lack of evidence based analysis to support published systematic reviews of the literature [7,8].

Therefore, by improving the limitations observed in previously published studies, we aimed to systematically show the impact of SLE on maternal and fetal outcomes following pregnancy, using a larger number of patients on a worldwide basis, through this meta-analysis.

2. Methods

2.1. Searched databases

The Cochrane Database of Randomized Controlled Trials, EMBASE (www.sciencedirect.com) database, and Medline database of medical research publications were carefully searched for appropriately relevant English language studies. Reference lists of suitable articles were also carefully searched for relevant publications. In addition, official websites of reputed journals of gynecology and obstetrics, as well as journals of rheumatological disorders were also searched for appropriately suitable articles. This search was conducted in accordance to the PRISMA guideline [9].

2.2. Searched strategies

During this search process, the following terms were used:

- systemic lupus erythematosus and pregnancy;
- systemic lupus erythematosus and pregnancy outcomes;
- systemic lupus erythematosus and maternal outcomes;
- systemic lupus erythematosus and fetal outcomes;
- systemic lupus erythematosus and gynecology;

The abbreviation 'SLE' was also used to replace its full form during the search process.

This search process was carried out from October 2016 to November 2016 and it only included studies that were published after the year 2000 (2001–2016).

2.3. Inclusion and exclusion criteria

Studies were included if:

- They compared pregnant women with SLE (experimental group) versus pregnant women without SLE (control group);
- They reported adverse maternal and/or fetal outcomes;
- They were published after the year 2000 (2001–2016).

Studies were excluded if:

- They did not compare patients with SLE versus non-SLE (only included the experimental group without including the control group);
- They were review articles;
- They did not involve pregnant women;
- They did not report adverse maternal and/or fetal outcomes;
- They were duplicates of the same studies;
- They were published in or before the year 2000.

These maternal and fetal outcomes which were reported have