Does Antidepressant Use in Pregnancy Cause Birth Defects?

Florence Martin*, Luke Richardson, Sally Stephens, Laura Yates

(Student No. 140030750 Email F.Martin3@newcastle.ac.uk School of Biomedical Sciences)

UK Teratology Information Service (UKTIS), Newcastle-upon-Tyne, UK

AIM

To perform a prospective study investigating the fetal effects of maternal serotonin noradrenaline reuptake inhibitor (SNRI) use during pregnancy.

INTRODUCTION

A teratogen is a substance, such as a medicine, that disturbs the development of the baby when it is growing in its mothers' womb. Some medicines are known teratogens, such as thalidomide, which caused thousands of birth defects in the 1960's[1].

Depression affects at least 12% of women during pregnancy[2] and if left untreated can have a negative impact on the developing baby; it is important for expectant mum's to be able to make the right choices for their health and their babies.

There is currently limited and conflicting information available concerning the use of SNRI antidepressants in pregnancy. The aim of this project was to provide additional information to better inform women as to the safety of SNRI antidepressant use in pregnancy.

METHODS

This project compiled the data collected by UKTIS (see Figure 1) and compared abnormal pregnancy outcomes and crude birth defect rates in SNRI (a class of antidepressant subject of this study) exposed pregnancies with two control groups; one group exposed to SSRIs (another class of antidepressants) and the other exposed to neither.

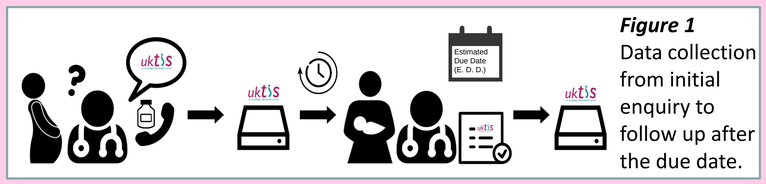

Figure 1
Data collection from initial enquiry to follow up after the due date.

The UKTIS database contains information for these enquiries over the last 30 years, and for this study, all the SNRI exposed pregnancies and pregnancies that fit the criteria for suitable controls were collected. Any women subject to overdose during pregnancy, twins and exposure to known teratogens were removed.

RESULTS

A total of 2,880 pregnancies were included in this study, 320 in our study group and 960 and 1600 in each of our control groups respectively (Figure 2). Women in the study group were enrolled earlier to UKTIS (their doctor made the initial enquiry earlier in their pregnancy), were more likely to smoke and more likely to have an unhealthy BMI when compared with the second control group exposed to neither class of antidepressant.

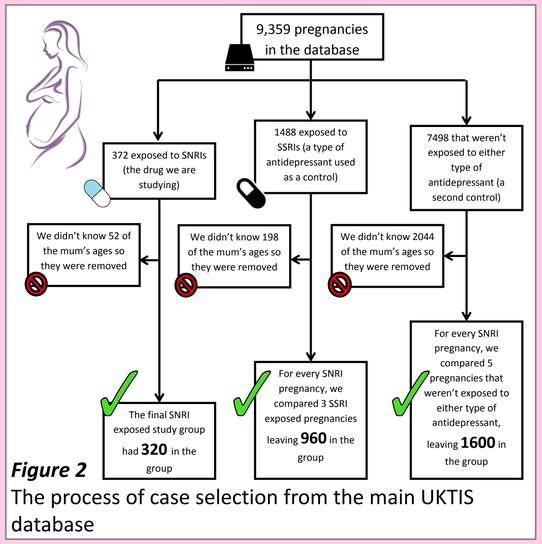

Figure 2
The process of case selection from the main UKTIS database

However, there weren't any significant differences between women in the study group and the first control group (exposed to SSRIs) suggesting that the groups consisted of women with more similar lifestyles, making it a more effective control.

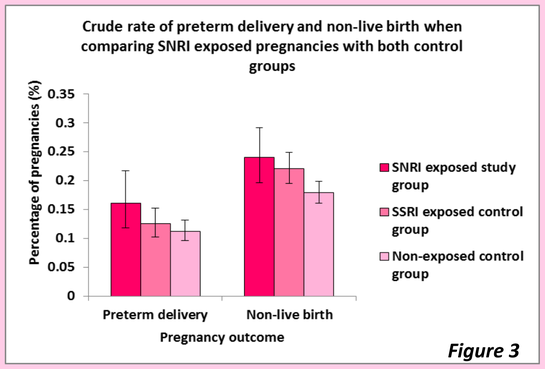

Figure 3

The crude rate of live births was decreased and rate of preterm delivery increased in the study group compared with the unexposed control group (Figure 3). However, no such differences were seen between the SNRI-exposed group and the SSRI exposed control group, thus omitted from Figure 3.

Differences in crude malformation rates are shown in Figure 4, none of which were significant, however sample numbers were small sample.

Total defect and minor defect rates were lower in the study group, however a higher major defect rate was observed in the study group than the controls.

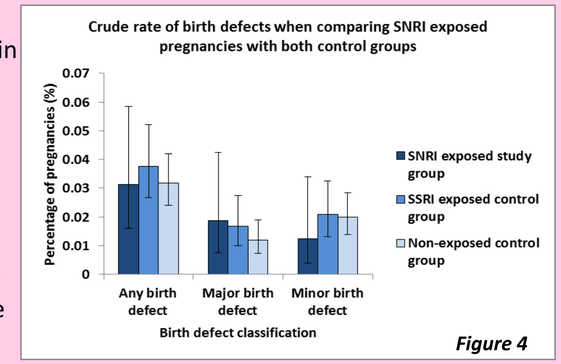

Figure 4

CONCLUSION

Although we did not identify any statistically significant differences in rate of birth defects, we did see an increase in the rate of major birth defects in the SNRI exposed study group compared with both controls. There were also a few differences in the characteristics of the three study groups but not enough information was available to assess whether these might affect the birth defect rates. As such, further research is required.

Although limited, the information provided in this study will contribute to the current data and will allow women to make more informed choices during their pregnancies.

References

1. Vargesson, N. (2015). Thalidomide-induced teratogenesis: History and mechanisms. *Birth Defects Research*, *105*(2), 140–156.
2. https://www.nice.org.uk/guidance/cg192/chapter/introduction

ACKNOWLEDGEMENTS

I would like to thank my supervisors Luke, Laura and Sally for the guidance and support they provided on this project. I would also like to thank everyone at UKTIS for welcoming me so warmly into the team over the course of the eight weeks.