

# The association miscarriage with migraine and exposure to triptans in pregnancy: a matched cohort and nested case control study.



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### BACKGROUND

- It is unclear whether migraine and its associated treatments impact the risk of miscarriage.

### OBJECTIVES

- to estimate the risk of miscarriage amongst pregnant women with migraine compared to pregnant women without migraine
- to estimate the odds of miscarriage in women with migraine exposed to triptans, compared to women with migraine not exposed to triptans.

### DESIGN

- A matched cohort study of pregnant women exposed to migraine matched for age ( $\pm 1$  year) and year of pregnancy to pregnant women without migraine to calculate the incident risk of miscarriage.
- Nested pharmacoepidemiological matched case-control study to assess the association of exposure to triptans with risk of miscarriage.

### METHODS



Routine health records and prescriptions used to identify cases of migraine prior to pregnancy.



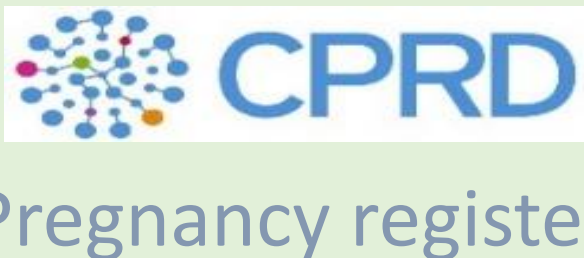
Log binomial regression models were used to estimate the adjusted relative risk (aRR) of miscarriage in women with migraine compared to those without, adjusting for maternal demographic, lifestyle factors and comorbidities.



Women with migraine whose pregnancies ended in miscarriage were matched to women with migraine whose pregnancies did not end in miscarriage. Logistic regression models were used to estimate the adjusted odds ratios (aOR) of exposure to triptans with miscarriage adjusting for the above covariates and triptan exposure prior to pregnancy.



### DATA SOURCE



### RESULTS

**193,208** pregnancies of **108,897** women with migraine were selected and matched to 193,208 pregnancies of women without migraine. **10.8% (n=20,788)** of women with migraine had a miscarriage compared to **10.0% (n=19,233)** of women without.

The **20,788** pregnancies of women with migraine ending in miscarriage were matched to **40,122** women with migraine whose pregnancies did not end in miscarriage. **3.47% (n=722)** of pregnancies ending in miscarriage were exposed to triptans compared to **2.74% (n=1,100)** of those not ending in miscarriage.

Table 1: Results of log binomial analysis of association between migraine and miscarriage

|                               | Women with migraine (n=193,208) | Women without migraine (matched on age +/- 1 year and year of pregnancy) (n=193,208) |
|-------------------------------|---------------------------------|--------------------------------------------------------------------------------------|
| Number of miscarriages, n (%) | 20,778 (10.8)                   | 19,233 (10.0)                                                                        |
| Unadjusted RR (95% CI)        | 1.08 (1.06-1.10)                |                                                                                      |
| Adjusted RR (95% CI)          | 1.06 (1.04-1.08)                |                                                                                      |

Adjusted for age, ethnicity, deprivation, BMI, asthma, depression, type 2 diabetes, hypertension, hypothyroidism, hyperthyroidism, inflammatory bowel disease, endometriosis and PCOS

Table 2: Results of logistic regression analysis of association between triptan exposure and miscarriage

|                                      | Migraine patients whose pregnancies ended in miscarriage N= 20,778 | Migraine patients whose pregnancies did not end in miscarriage N= 40,122 |
|--------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------|
| Pregnancies exposed to triptan N (%) | 722 (3.47)                                                         | 1,100 (2.74)                                                             |
| Unadjusted OR (95% CI)               | 1.28 (1.16-1.40)                                                   |                                                                          |
| Adjusted OR (95% CI)                 | 1.24 (1.13-1.37)                                                   |                                                                          |

Adjusted for age, ethnicity, deprivation, BMI, asthma, depression, type 2 diabetes, hypertension, hypothyroidism, hyperthyroidism, inflammatory bowel disease, endometriosis, PCOS and triptans prescribed before pregnancy.

### CONCLUSION

Women with migraine, and especially those requiring triptans during pregnancy, have an associated increased risk of miscarriage.