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Safety of Levetiracetam in Pregnancy and Lactation – A Systematic Review

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Background

- Most women with active seizures are often encouraged to continue their antiepileptic medications during pregnancy to avoid serious fetal or maternal complications.
- Levetiracetam (LEV) is a newer antiepileptic drug used as adjunctive therapy in patients with refractory partial seizures with or without secondary generalization.
- Because of its broad-spectrum activity, LEV is becoming increasingly used in women with epilepsy of childbearing potential, during pregnancy and thus also during lactation.
- First generation anti-epileptics are known to cause Major Congenital Malformations (MCM) and developmental problems.
- However, there is paucity of literature on information regarding safety of Levetiracetam (second generation), use in pregnancy and breastfeeding.
- The purpose of the present study was to summarize the scientific evidence behind use of LEV during pregnancy and lactation.

Objectives

- To review the fetal safety of Levetiracetam during pregnancy.
- To review the safety of Levetiracetam in breastfeeding.

Methods

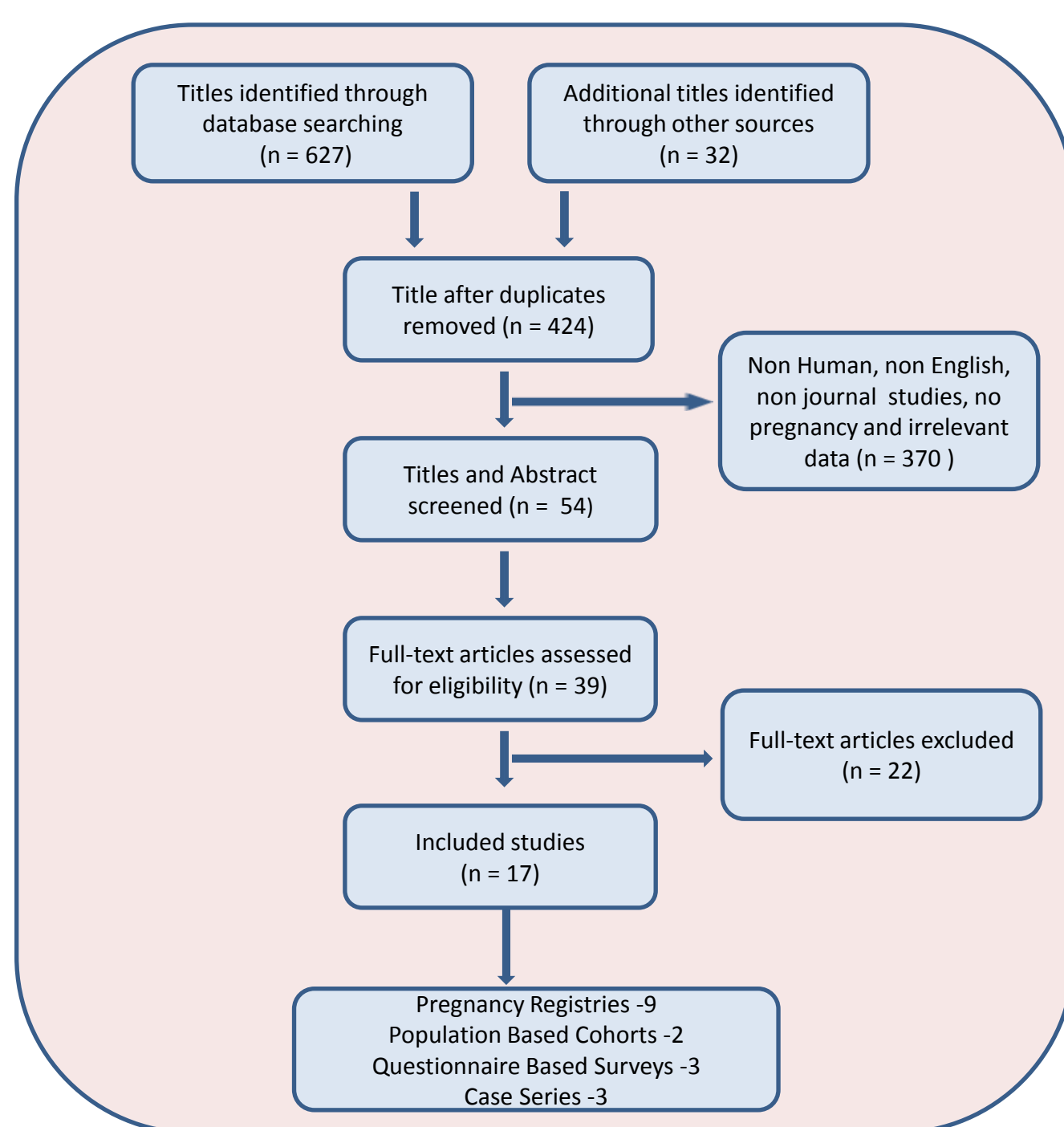
- Following databases (Medline, Psych info, Science Direct, Lactmed, and Midlands's medicine) and reference list of the articles were searched from inception until May2016.
- The study included all interventional, observational, randomized control trials, and case series or case studies written in English.
- Study selection was done by two independent researchers (BT, PAR) and then compared.
- Quality assessment was performed before including the study in the final review.
- Data extraction tool was developed and was conducted by two independent reviewers.

Results

- A total of 17 studies (9 pregnancy registries, 2 population based cohorts, questionnaire based surveys and 3 case series) were included.
- Out of 2350 LEV monotherapy exposed women, approximately 2% (n=43) were reported to have MCM.
- The rates of MCM varied across the literature like when LEV was used in combination with other anti-epileptics.
- No major adverse effects were reported in breastfed infants whose mothers received LEV 1000 to 3500 mg daily.

- Furthermore, studies assessing the neurocognitive development until one year supported the use of LEV during pregnancy compared to other drugs in the same group.
- However, very few studies (n=2) assessed the effect of LEV on poor neonatal adaptation syndrome (PNAS) or neurocognitive behavior after one year of age or more

Figure 1: PRISMA Chart



Conclusion

- LEV use during pregnancy can be considered safe; although the long term safety is still unknown.
- Limited evidence suggests use of LEV (upto 3500 mg daily) during breastfeeding is safe and is not expected to be associated with any adverse events.

Acknowledgement

- A systematic review protocol has been published in PROSPERO International prospective register of systematic reviews.
- The authors would like to acknowledge Nurhaina Sara Lakibul to design the poster.

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