

Prenatal brain abnormalities in twin-to-twin transfusion syndrome: a systematic review and meta-analysis

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Objective

To ascertain the incidence of antenatally diagnosed brain injuries in twin pregnancies complicated by twin-to-twin transfusion syndrome (TTTS) and quantify perinatal mortality, morbidity and long-term neurodevelopmental outcomes of these fetuses.

Design: systematic review and meta-analysis

Methods

Medline, Embase, Clinicaltrials.gov and Cochrane Library databases were searched to include studies reporting on brain abnormalities diagnosed antenatally in twin pregnancies complicated by TTTS.

Primary outcome: the incidence of prenatal brain abnormalities.

Secondary outcomes: incidence of intrauterine demise (IUD), neonatal death (NND), termination of pregnancy (TOP) and long-term morbidity.

Statistical analysis: Meta-analyses of proportions (PP) were used to combine data.

Results

Brain injuries occurred in 2.2% of fetuses, 1.0% and 0.8% of recipients or donors, respectively (13 studies: 1573 TTTS cases, 88 fetuses, Figure1). Types of lesion are reported in Table 1.

IUD occurred in 13.4% of fetuses, while TOP was chosen by parents in 53.5% cases. NND had an incidence of 15.4%.

Only two studies reported on composite morbidity with 20.4% of morbidity reported overall, 29.7% and 20.4% of the recipient and donor fetuses, respectively.

No information on neonatal intensive care unit admission, respiratory distress syndrome or other long-term outcomes could be reliably retrieved due to small numbers.

Conclusions

Brain injuries occurred in 2% of twin pregnancies complicated by TTTS and treated with laser. TOP was chosen by parents in almost half of the cases (53.5%). There is an urgent need for long-term follow up studies of these children.

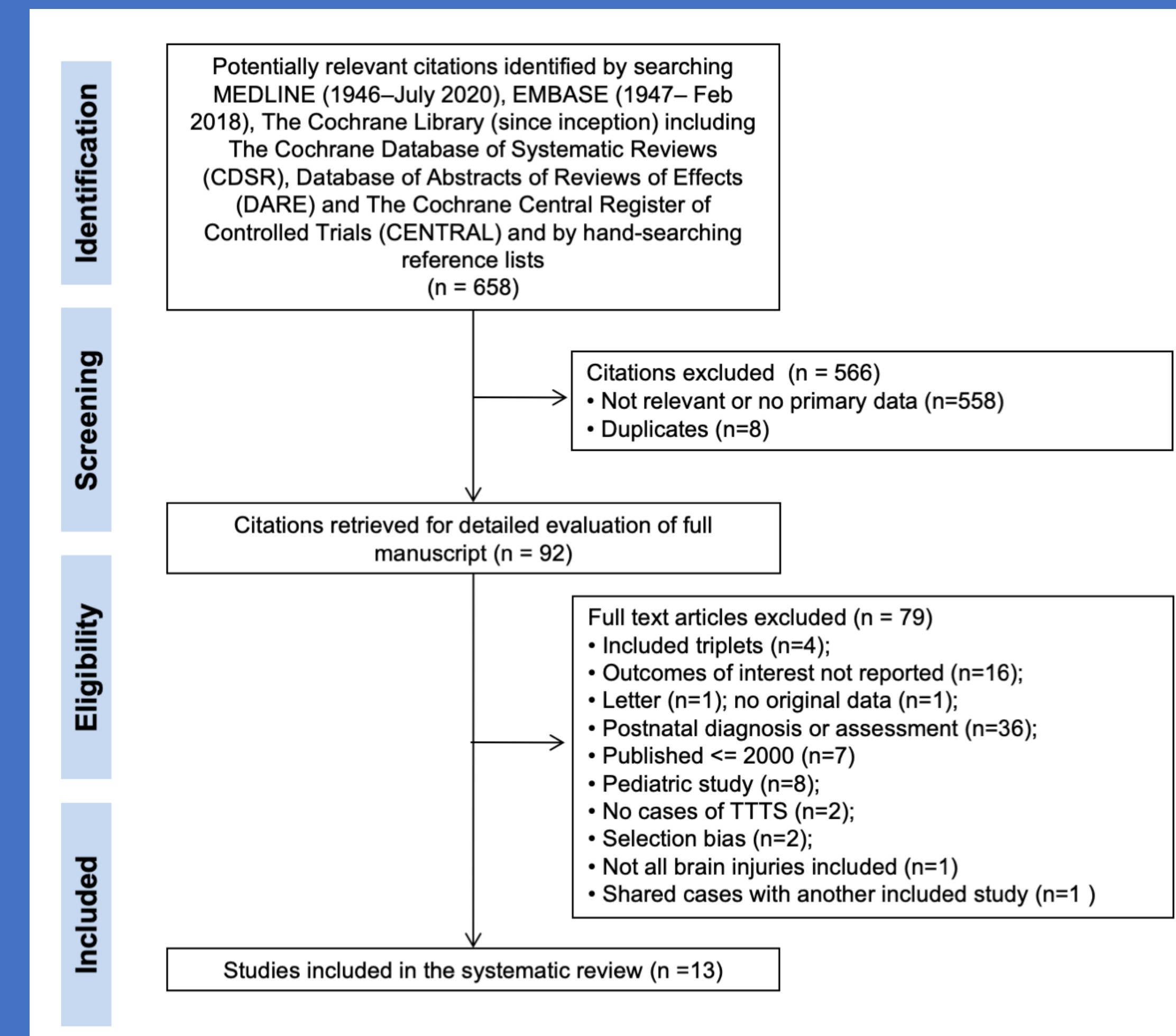


Figure1. Flow chart of included studies

Type of lesion	PP (95% CI)
Ischemic Lesions	30.4% (19.1-43)
Destructive Lesions	23.9% (13.7-35.9)
Ventriculomegaly	19.9% (10.6-31.3)
Haemorrhagic lesions	15.3% (7.1-25.8)

Table1. Types of brain abnormalities

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