TORCH screening in isolated IUGR: is it really necessary?

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Background

The TORCH pathogens (*Toxoplasma gondii*, syphilis, rubella, cytomegalovirus (CMV), and herpes simplex virus (HSV)) can cause congenital infection.[1] However, isolated intrauterine growth restriction (IUGR) is rarely the sole manifestation of intrauterine TORCH infection.

There is limited evidence to support TORCH screening in the setting of isolated IUGR, yet routine screening for TORCH infections in isolated IUGR is common practice.[2,3]. We aimed to review maternal TORCH screening and determine common indications for screening and evaluate its use in predicting congenital infections.

Methods

Data collection:

A retrospective chart review was conducted at two hospitals in Melbourne, Australia:

- Hospital 1
  - Specialist maternity centre
  - Jan 2014 – Dec 2018
- Hospital 2
  - Routine antenatal care
  - Jan 2014 – Dec 2017

Eligible pregnant women were identified by extracting TORCH serology requests in pathology databases.

Definitions:

- Positive *screen:* any positive or indeterminate IgM.
- *Confirmed* maternal infection = clinically consistent illness + positive IgM + low avidity IgG
- *Possible* maternal infection = positive IgM + moderate or high IgG, without a consistent clinical illness

Results

- **718 pregnancies** (760 fetuses) were reviewed. There were 676 were singleton births and 42 twin births.
- The **mean maternal age** was 30.2 +/- 5.2y.
- The **average gestational age** at the time of TORCH investigation was 36 weeks (+/- 4 weeks).
- The **total cost** of TORCH screens alone was AUD$65,006.60.
- **Zero cases** of neonatal TORCH infection were identified in the setting of isolated IUGR (figure 1)

Table 1. Indications for TORCH testing

Indication	Hospital 1 n=425	Hospital 2 n=293	p value
Isolated IUGR	269 (63.3%)	242 (82.6%)	<0.001
Neurological abnormality	44 (10.4%)	5 (1.7%)	<0.001
Echogenic bowel	15 (3.5%)	10 (3.4%)	1.0
Abnormal fluid collection	13 (3.1%)	9 (3.1%)	1.0
Isolated polyhydramnios	29 (6.8%)	10 (3.4%)	0.07
Other US finding	28 (6.6%)	10 (3.4%)	0.089
Maternal illness	17 (4%)	5 (1.7%)	0.126
Other	10 (2.4%)	2 (0.7%)	0.156

Investigations ordered (table 1)

Serology at hospital 2 was available as a single "TORCH screen" request.

Hospital 1 required all tests to be ordered individually. A 'full' panel* was ordered in 63%.of cases.

*i.e. all 4 serologies

Maternal serology results (table 2)

- 49 maternal IgM+ (outcomes in figure 1)
  - 34 CMV, 15 *Toxoplasma;* 3 women positive for both
- No rubella IgM+ was detected
- Rubella IgG ordered on 506 women (84.3%) who had known previous immunity to rubella
- At both sites HSV testing was limited to IgG with no IgM performed

Table 2. Positive maternal serology by indication for testing

Indication	No. IgM+ (% + screens for indication)	95% CI
Isolated IUGR	38 (7.4%)	5.5-10.0%
Neurologic abnormality	2 (4.1%)	1.1-13.7%
Echogenic bowel	1 (4.0%)	0.7-19.5%
Abnormal fluid collection	1 (4.5%)	0.8-21.8%
Isolated polyhydramnios	4 (10.3%)	4.1-23.6%
Other ultrasound findings	1 (2.6%)	0.47-13.5%
Maternal illness	2 (9.1%)	2.5-27.8%
Other	0 (0%)	0-24.4%
Total	49	

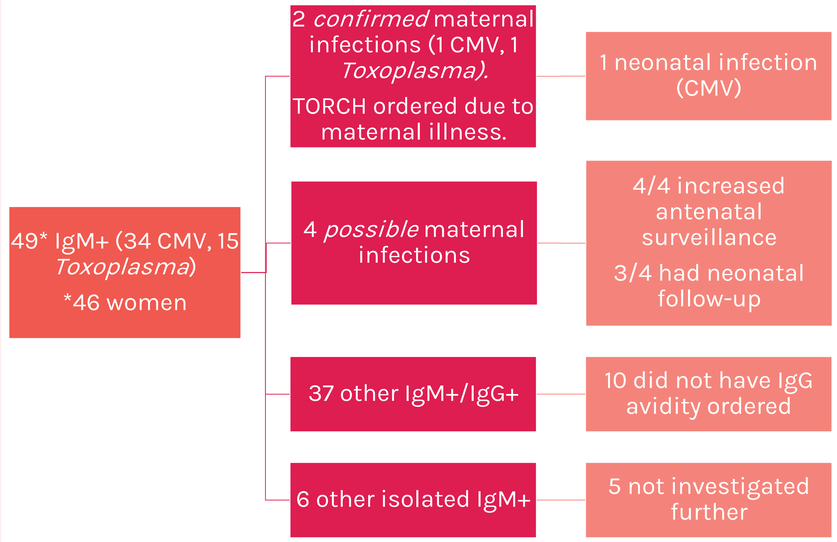

Figure 1. Outcomes of positive maternal IgMs. All six women with confirmed or possible maternal infection had increased antenatal surveillance. One of these women was not referred for neonatal follow-up. There was inconsistent interpretation and investigation of other positive IgM results.

Conclusion

Significant costs were expended to diagnose **zero** cases of TORCH infection in isolated IUGR.

The only cases of maternal infection were in women who were symptomatic of these illnesses. The only neonatal infection was in a baby born to one of these women.

Investigations were ordered haphazardly, and positive results were interpreted inconsistently by clinicians, with variable referral to an ID physician, maternal-foetal medicine specialist, or paediatrician.

TORCH screening in isolated IUGR is of no clinical utility and should be abandoned in routine workup of this diagnosis. Clinician education and directed guidelines are needed.

References

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