90% – 95% of ectopic pregnancies that present are stable, with no clinical suspicion of rupture. These are amenable to a combination medication-based treatment, instead of surgery. A medical therapeutic that can resolve ectopic pregnancies could positively impact on contemporary gynaecological care of women.

- A single injection (methotrexate) and a short course of tablets to resolve ectopic pregnancy
- Avoids invasive surgery
- Safer for women, as it avoids surgery
- Reduces risk of compromising fertility as the fallopian tube is not removed
- Cheaper (medications replace surgery)
- Significantly decreases mortality in third world countries

THE TECHNOLOGY

This technology offers a single injection (methotrexate) combined with a tablet (EGFR inhibitor) to medically cure ectopic pregnancies.

The placenta is critically dependent on the Epidermal Growth Factor Receptor pathway (EGFR) to survive. Thus, blocking EGFR is a novel strategy that selectively targets the placenta.

We have undertaken extensive pre-clinical work robustly demonstrating that combination EGFR inhibition and methotrexate is supra-additive in potently killing placental tissue.

In these experiments we used gefitinib, an orally available small molecule EGFR blocker. Post-treatment surveillance has shown it is safe, and remarkably non-toxic. We successfully completed phase I and II clinical trials (Trial number: ACTRN12610000684022), treating women with ectopic pregnancies using combination methotrexate and orally administered gefitinib. Trials are centrally coordinated at Monash University, and involve a collaboration with The University of Edinburgh. Early results suggest very potent responses and a prompt cure of ectopics. So far, there have not been notable toxicities. Funding has now been approved for a phase III trial to be based in the UK.

Potential products and applications

Most ectopic pregnancies that present for medical attention will be suitable for this treatment (we estimate 95%). Only in those where it is suspected that the ectopic has already ruptured will the treatment not be suitable (5% or less). Thus, those patients who currently have surgery could be treated with this drug combination instead. This treatment provides a safer, easy to administer, cheaper treatment that reduces the risk of compromising fertility.