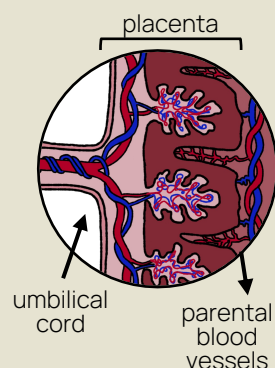
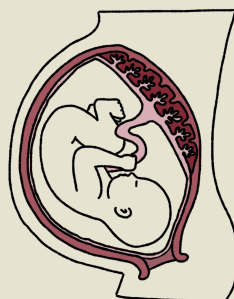


FROM PLACENTA TO PREECLAMPSIA: A PRELUDE TO THE LIFE THAT FOLLOWS

How preeclampsia arises in the placenta during pregnancy and increases the risk of parent and offspring developing cardiovascular disease later in life

What causes preeclampsia?

- 1 **Preeclampsia arises in the placenta**, the temporary organ that nourishes and protects the growing baby.



During pregnancy, **placental cells invade and transform parental blood vessels** in the uterus to facilitate flow of blood that transport nutrients and oxygen for the baby into the placenta.

- 2 Several **risk factors** impact different aspects of placentation and **increase the risk of preeclampsia**.



chronic hypertension



multiple pregnancy

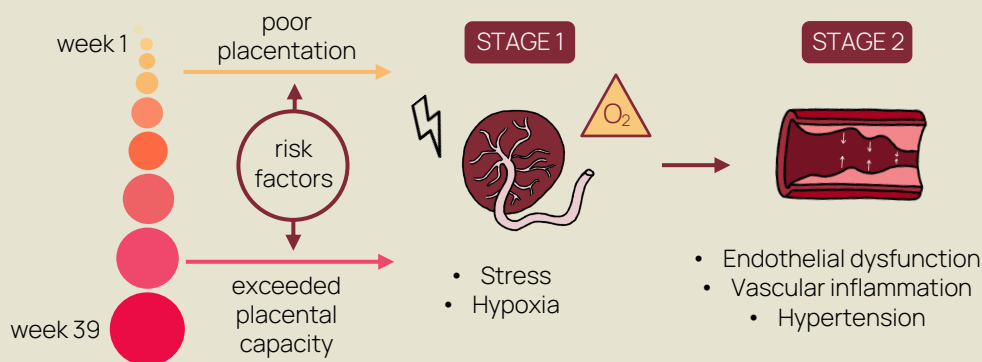


obesity



genetic factors

- 3 The **mechanisms** by which **placental dysfunction** leads to preeclampsia vary with gestational age. **Risk factors** affect multiple steps in these pathways.



Preeclampsia is a multifactorial pregnancy complication that affects 2-10% of all pregnancies worldwide and it is a leading cause of maternal and perinatal mortality and morbidity.



Although the **symptoms of preeclampsia (PE)** resolve after birth, both birthing **parent and offspring** affected by PE are **more likely to develop cardiovascular disease (CVD)**, compared to an uncomplicated pregnancy.



organ damage



high blood pressure

How does preeclampsia increase risk of future CVD in parents and offspring?

- Preeclampsia & CVD **share risk factors** (e.g., obesity, diabetes)
- PE may induce **long-term metabolic and vascular abnormalities**
- **Likely a combination of both**

In the parent...

Shared genetic factors, environment & lifestyle between parent & offspring

Developmental programming may mediate PE causing permanent changes to the physiology, metabolism and epigenome of an individual, which in turn affects risk of health and disease.

In the offspring...



What does the future of PE research hold?

Early detection of PE will allow us to improve its treatment and management.



Molecular diagnostic tools that will cross the bridge into the clinic are being developed.

PE is a very **complex condition** with many mechanisms & risk factors underlying its etiology.



More research to understand the role of genetic & environmental factors in its onset and progression is underway.

More **longitudinal studies** are needed to shed light into the mechanisms



by which parents and offspring affected by PE have a higher incidence of CVD.

Learn more! References:

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