Anti-Müllerian Hormone (AMH)

This hormone is produced by the pre-antral follicles, and is a marker of total ovarian reserve. It does not determine the quality of eggs, which is largely related to age. With ageing, the rate of aneuploid eggs increase which then give rise to aneuploid embryos.

The AMH is a predictor of ovarian response to ovarian stimulation with gonadotrophins and does not predict the chance of natural conception. That's because no matter how high/low the AMH is, the woman will usually only ovulate1an egg that has a 50/50 chance of producing a pregnancy irrespective of AMH.

This however becomes an issue with an older woman, with a low AMH. Which may then preclude non-IVF type treatments for them as ovarian reserve becomes a premium and going for an IVF cycle may remain their best option. There is no specific cut-off for the ideal AMH as the values are age related and expressed in age related centiles, with lower centiles for age indicating lower reserves and a proportionately reduced rate of response to treatment.

The AMH can be affected by a long period of OCP use, chronic disease or its treatment, although this can be reversible. Gonadotoxic drugs will destroy ovarian tissue and these are irreversible changes.

As a general rule, AMH correlates with egg numbers with maximal stimulation at age 35-37. E.g. If AMH was 10 pmol/l, a woman younger than 35 would produce more eggs with maximal stimulation. A woman aged 35 to 37 will usually produce 10 eggs. A woman older than 37 will usually produce less than 10 eggs.

AMH can sometimes correlate poorly with several patients that have a seemingly normal AMH, responding very poorly even with maximal ovarian stimulation. This is especially the case in women with severe endometriosis.

Their response despite high AMH is often misleading. One option to predict the outcome is using other measures, such as an antral follicle count. The antral follicle count should be performed on day 2/3 of the menstrual cycle, counting only those follicles between 2-6 mm. I would usually suggest treatment based on the lower of the two (e.g. start treatment even if AMH 20, but AFC <10), but dose (conservatively) based on the higher of the two results.

It is important to be careful of the units of measurement when interpreting AMH. In the US, it is in ng/ml units and the conversion is usually x7 fold. Aka, an AMH of 1n/ml (US) = 7 pmol/l (Aus)

Put together, AMH is a useful prognostic tool for fertility treatment. It should not be interpreted in isolation, but to be considered in the context of the woman's age, comorbidities and desired family size.

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