Ovarian reserve; Background and implications for reproduction and beyond

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In women, the pool of primordial follicles present at birth is diminishing in a logarithmic fashion during life until complete exhaustion resulting in menopause. Age of menopause is also closely linked to preceding sterility and decreased natural fertility. On average women reach menopause at the age of 50, and natural fertility is diminishing 20 yrs earlier.

In current Western societies, an increasing proportion of women only start thinking about having children when they are beyond 30 years of age. At that age, on average the remaining follicle pool has already been reduced to 10%. Due to the wide individual variability of age of menopause between 40 and 60 years, preceding decreased fertility may also vary considerably. Much research in recent years has convincingly demonstrated that anti-Mullerian hormone (AMH) serum concentrations along with antral follicle count (assessed by transvaginal ultrasound) currently represent the best markers for ovarian reserve (i.e. remaining quantity and quality of ovarian follicles). Such investigations may help to predict natural fertility chances (i.e. diminished ovarian reserve) for a given woman, to decide regarding expectant management or the initiation of infertility interventions (including the best treatment options). This may truly render infertility care more patient tailored, and may aid women in making life style choices and possibly oocyte freezing for fertility preservation.

Moreover, the relatively early prediction of age of menopause may also help to individualize counselling in relation to healthy aging. Next to short term implications, increasing evidence suggests that the age of menopause also affects subsequent general health, such as osteoporosis, breast cancer risk, cognition and dementia, cardiovascular risk and stroke. Age of menopause and perimenopause management seems key factors in relation to healthy female aging since many girls born today are expected to reach one hundred years of age. Consequently, half of their lives will be after menopause.

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