Can AMH Level be Replaced by LH/FSH Ratio?

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Anti-mullerian hormone (AMH) is a marker that defines the ovarian reserve in women and reflects declines in ovarian function and fecundity. Unlike estradiol, luteinizing hormone (LH), or follicle-stimulating hormone (FSH), AMH levels are not affected by the menstrual cycle. We analyzed the changes in AMH concentrations and age-specific reference intervals in a large number of Korean women and observed the relationship between AMH level and LH/FSH ratio. The study enrolled 5,126 women age 26 to 45 years who visited the Department of Obstetrics & Gynecology of Cheil General Hospital. We excluded patients with polycystic ovary syndrome, endometriosis, amenorrhea, or ovarian cancer because they were considered likely to affect the AMH test. In addition to AMH levels, we measured LH, FSH, prolactin, free T4, and thyroid-stimulating hormone (TSH). AMH levels decreased significantly with age, by an average of 0.2 to 0.3 per year. Both the mean and median age-specific AMH values showed significant linearity, with $y = 0.276x + 13.12$ (x = age, y = AMH level). There was a significant positive correlation between AMH and LH/FSH ratio and negative correlations between AMH and LH or FSH levels. AMH levels normally decrease with age. Therefore, an age-adjusted reference interval must be established to clinically assess the ovarian function. We established age-adjusted AMH reference intervals for a large population of Korean women. This study suggests that AMH level can be replaced by LH/FSH ratio in small infertility clinics where AMH cannot be applied because of the inability to perform batch analysis.

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