Age-related analysis of inhibin A and B relative to the intercycle monotropic FSH rise in normal ovulatory women


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A monotropic rise in FSH occurring in the intercycle interval (encompassing the late luteal phase of one cycle and the subsequent early follicular phase) has been consistently observed as women advance in reproductive age. Recent studies have suggested that this monotropic rise in FSH in older women is associated with diminished levels of inhibin B in the early follicular phase and/or inhibin A in the luteal phase. However, many inconsistencies exist among studies examining this issue, likely related to size and character of the study population (i.e., infertility patients), limited sampling, and the difficult nature of the inhibin assays. The objectives of the current study were to determine whether deficiencies in circulating levels of inhibin A and/or B exist during this critical intercycle period in normally ovulating older women (age 40-45, n = 16), as compared to their younger counterparts (age 20-25, n = 13). In order to completely capture the FSH peak during the intercycle period, blood samples were obtained daily throughout one menstrual cycle and continued through the follicular phase of the subsequent cycle. These samples were analyzed for LH, FSH, estradiol and inhibin A and B content. As expected, the mean intercycle FSH peak was significantly (p < 0.01) higher in the older vs. younger subjects. Despite the large difference in the intercycle FSH levels, no deficiency in inhibin A or estradiol was detected in older ovulatory women. In fact, levels of inhibin A were significantly higher in the older women during this time frame. In contrast, circulating levels of inhibin B were significantly lower in the intercycle phase in older subjects. Thus, the monotropic rise in FSH does not appear to result from a deficiency in circulating inhibin A. These data support the concept that inhibin B plays a critical role in mediating the monotropic rise in FSH in older women.