

Elevated progesterone levels in women on DHEA supplementation likely represent assay interference

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Dear Editor,

We read with interest the recent case report by Strauss et al. regarding a woman with diminished ovarian reserve who had higher serum progesterone levels after treatment with DHEA [1]. The authors clearly demonstrate that serum progesterone measurements increased while the patient was receiving DHEA supplementation after ovarian transplantation. The authors hypothesized that this progesterone must be derived from the adrenal glands. Another significant possibility exists. Data from our lab has demonstrated that increased progesterone levels seen after DHEA administration are likely due to cross-reactivity with the immunoassay and do not represent circulating progesterone. Our group and others have noted that when women were placed on DHEA, baseline serum progesterone levels were markedly higher than those measured prior to DHEA supplementation [2]. While other authors have assumed this indicated a true increase in progesterone production of either an ovarian or adrenal source, the possibility of assay interference must be considered. Much of the ingested DHEA is rapidly sulfated and converted to DHEA-SO₄. We recently demonstrated [3] that the addition of pure DHEA-SO₄ solutions

(containing no progesterone) resulted in dose-dependent increases in progesterone assay results in spite of there being no additional progesterone in the samples. This phenomenon was demonstrated on three different commercially available immunoassay platforms. Thus, the elevated progesterone measured in this young woman post-ovarian transplant likely reflects the fact that she was properly taking her prescribed DHEA and the progesterone assay cross-reacted with her elevated serum DHEA-SO₄. The implications of this assay interference go beyond monitoring of the resumption of ovarian function post transplantation. Given the importance of late follicular progesterone elevations on clinical outcomes after fresh embryo transfer [4], it is important for each clinical program that prescribes DHEA to quantify the level of interference with their progesterone assay and to consider those data when making clinical decisions.

References

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