REJUVENATING OVARIAN FUNCTION: DHEA? (IMPROVES IVF OUTCOMES, AND REDUCES ANEUPLOIDY)
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Conflict Statement:
Dr. Gleicher is listed as co-inventor on a number of U.S. and international patent applications, which have potential relevance to his presentations. One already awarded U.S. user patent claims beneficial therapeutic benefits from DHEA supplementation in infertile women with diminished ovarian reserve. Other DHEA patents are still pending.
A number of FMR1-related patents are also pending, claiming diagnostic benefits from determining the numbers of CGG triple nucleotide repeats in young women and in women with infertility.

Overview:
According to a recent survey, approximately one third of IVF centers world-wide have started utilizing dehydroepiandrosterone (DHEA) in women with diminished ovarian reserve (DOR). Considering published experience, this should not surprise because DHEA significantly improves treatment prospects for women with DOR, whether DOR is the consequence of advanced female age or of premature ovarian aging (POA).
Published data suggest that DHEA improves oocyte yields and oocyte quality, both, of course, beneficially affecting embryo quantity and quality. It, therefore, also does not surprise that DHEA increases IVF outcomes, including pregnancy rates, and increases spontaneous pregnancy chances.
How DHEA affects all of these parameters is unknown but it is now well established that DHEA supplementation reduces embryo aneuploidy rates and, therefore, improves at least one very important aspect of “quality.” This is also well documented by surprisingly low spontaneous miscarriage rates after DHEA supplementation.
DHEA is effective in all forms of DOR, though effectiveness is, as one would expect, age-linked. POA patients, therefore, demonstrate slightly better outcomes than women with DOR due to advanced age. The degree of DOR is, however, of surprisingly limited importance. For example, our center established so far over 70 pregnancies in women with extreme DOR (AMH < 0.4 ng/mL), many with undetectable levels of anti-Müllerian hormone (AMH). AMH of 1.05ng/mL at all ages to a significant degree differentiates between lower and higher IVF pregnancy chances; yet, age 42 also represents a cut off between lower and higher pregnancy chances.
DHEA is not a miracle drug! To achieve maximal results it is important to use the correct DHEA, supplement patient for a minimal length of six weeks prior to IVF start with a correct dosage and, maybe most importantly, stimulate the patient’s ovaries correctly. Such stimulation has to consider the patient’s “ovarian” age, and not her chronological age. In DOR patients this means that everything suppressive on ovarian function (OCPs, long agonists, antagonists) should, if possible, be avoided.
Our success in treating even the most severe forms of DOR led us to suggest a new concept of ovarian aging which no longer assumes that oocyte age as women age. Instead, it is the ovarian environment, in which oocytes go through folliculogenesis, that ages. This concept explains decreased aneuploidy (and miscarriages) after DHEA supplementation, which under a concept of already irreversibly age-damaged oocytes would not appear feasible. Under the new concept DHEA is a first drug beneficially affecting the ovarian environment in which follicle/oocytes mature. Others can be expected in the future, further improving our ability to treat women with severe DOR.