# The Relationship Between *Heart and Neural Crest Derivatives Expressed 2* (HAND2) and Progesterone Levels with Endometrial Sonography Morphology During Ovarian Stimulation with Clomiphene Citrate

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## ABSTRACT

**Background: Pregnancy success is highly determined by embryo dynamics and endometrial receptivity. The detection of biomarkers to assess endometrial receptivity is a promising approach that aids in infertility management. Heart and neural crest derivatives expressed 2 (HAND2) is a progesterone-dependent protein in uterine stromal tissue that triggers cellular changes supporting the formation of a receptive endometrium. HAND2 has potential as a biomarker for assessing endometrial receptivity.**

**Materials and Methods: In this pre-experimental study, we evaluated endometrial morphology using sonography and measured serum levels of progesterone and HAND2 in the pre-and post-ovulatory phases in 40 patients who underwent ovarian stimulation with 50 mg of clomiphene citrate. The endometrial morphology evaluated included endometrial thickness, echogenic patterns, and periendometrial vascular distribution.**

**Discussion: Serum levels of progesterone and HAND2 increased in conjunction with morphological changes observed in endometrial sonography. There was a significant correlation between changes in progesterone and HAND2 levels in the pre-and post-ovulatory phases with changes in endometrial sonography.**
**Conclusion: There is a significant correlation between changes in progesterone and HAND2 levels and changes in endometrial sonography morphology.**

**Keywords: Endometrium, Progesterone, HAND2, Sonography.**

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