Poster number P29.07.
CUT OFF VALUES OF 3D POWER DOPPLER PARAMETERS IN RELATION OF LOW RESPONSE.

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Introduction

To assess the value of 3D vascularization parameters in the prediction of the number of mature oocytes (ME) in low ovarian responder and establish a cut off useful in clinical practice to predict number of eggs that we could retrieve.

Methods

A prospective observational study . We have selected patients who were undergoing IVF/ICSI with less than 5 mature eggs retrieved from 2011 and 2013. We evaluated ovarian vascularization through vascularization index (VI), flow index (FI) and vascularization flow index (VFI) to establish his value in prediction of ME retrieved. We perform multiple logistic regression and ROC curve to determine cut offs values of these parameters.

Results

48 patients were included with low response (<5 ME). Patients were divided into two subgroups: very low response(VLR) when we obtained less than or equal to 2 ME (N = 21) and low response (LR) when we had retrieved 3 to 5 mature oocytes (N = 27). Statistically differences were found between ovarian response and ovarian vascularization. ROC curve was performed and we found AUC of 0.79 for VI, 0.76 for FI and 0.79 for VFI. Cut off levels were established in 3.05 for VI (sensitivity 76.2%, specificity 77.8%), 34, 35 for FI (sensitivity 71.4%, specificity 77.8%) and 1.35 for VFI (sensitivity 90.5%, specificity 70.4%).

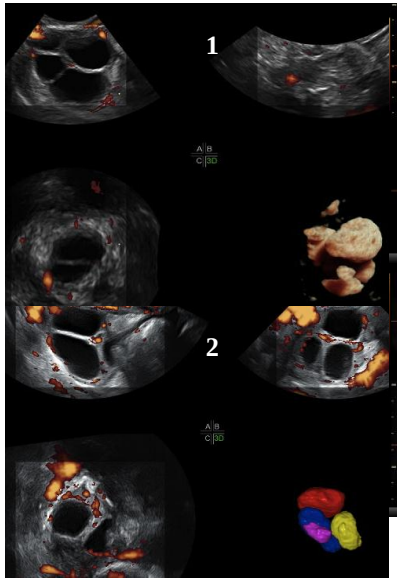

Figure 1. Lower vascularity between follicles Figure 2. Higher vascularity indicating good prognosis

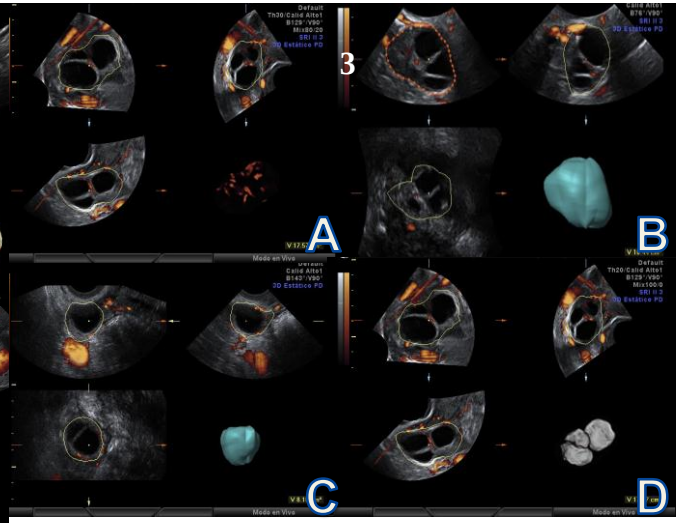

***Figure 3.* A) Obtaining a three-dimensional image of the vascularization. B) Ovarian volume obtained after 3 follicles stimulated C) Ovarian volume obtained after 2 follicles stimulated. D) Inversion mode showing 3 follicles.**

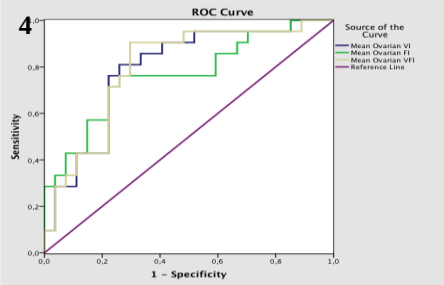

***Figure 4. ROC curve* analysis indicating performance of vascularization parameters for the prediction of very low ovarian response.**

Conclusion

Three-dimensional power Doppler ultrasound provides important information at the time of establishing the prognosis of a patient with low ovarian response. VFI cut-off of 1.35 has a high predictive value in low ovarian response.