

P-657 Prostaglandin D2 is correlated with follicles development and a reliable marker of ovarian reserve of poor ovarian responder patients

K.H. Choi¹, Y.J. Kim², K.Y. Kang¹, E.A. Park¹, Y.S. Kim³, M.J. Kim³, H.O. Kim³, M.K. Koong³, Y.S. Kim³, T.K. Yoon³, J.J. Ko⁴, J.H. Lee^{1,4}

¹CHA Fertility Center Seoul Station, Embryology Lab, Seoul, Korea- South ;

²CHA Medical Group, Advanced Research Division of Reproductive Medicine, Seoul, Korea- South ;

³CHA Fertility Center Seoul Station, IVF clinic, Seoul, Korea- South ;

⁴CHA University, Biomedical Science, Pocheon-si, Korea- South

Study question: Is the prostaglandin D2 (PGD2) associated with growing follicles and ovarian reserve of poor ovarian responders?

Summary answer: PGD2 is correlated with ovarian stimulation activity and follicle growth. Especially, poor ovarian responders show a significant decrease in the level of follicular fluid.

What is known already: Prostaglandins (PGs) are involved in the female reproductive process, mainly ovulation, fertilization, and implantation.

Study design, size, duration: We investigated the PGD2 level in the follicular fluid of poor ovarian responders. The collection of human follicular fluid was approved by the Institutional Research and Ethical Committees of CHA University (approval number: 1044308-201611-BR-027-04) from January to December 2019. Follicular fluid was collected from patients with normal ovarian response and patients with POR.

Participants/materials, setting, methods: We studied whether prostaglandin has related to POR in the clinical key factor by measuring human follicular fluid. Follicular fluid was collected from patients with normal ovarian response and patients with POR. The concentration of PGD2 in follicular fluid was determined with ELISA kits following the manufacturer's protocol.

Main results and the role of chance: We analyzed the level of PGD2 in the follicular fluid of patients with normal ovarian response and patients with POR using an ELISA. The PGD2 concentration was significantly lower in the follicular fluid of patients with POR than in the follicular fluid of young and old patients with normal ovarian response.

Limitations, reasons for caution: This study has an identification of biomarker of the clinical samples as POR criteria patients. Therefore, further investigations aimed at specific recovery of low PGD2 metabolic activity in the CCs during control ovarian stimulation.

Wider implications of the findings: Until now there is no specific biomarker of POR. AMH is just an ovary reserve marker for an indication of ovary function. PGD2 is one of the metabolites in steroid metabolism in the ovary. Therefore, we can find some cure through further study for improved PGD2 production to POR patients.

Trial registration number: none