P-658 Lovastatin promotes the expression of LDL receptor and enhances E2 production in the cumulus cells

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Study question: Lovastatin enhanced E2 productive ratios in the cumulus cells through promoted expression of Low-density lipoprotein receptor (LDLR).
Summary answer: Lovastatin up-regulated gene expression of LDLR in the CCs. And the high expression of LDLR promoted E2 productive ratios from CCs.
What is known already: We already reported that the up-regulation of LDLR correlated with clinical pregnancy. Therefore, we found lovastatin as an up-regulator of LDLR expression of clinical pregnancy.
Study design, size, duration: This is an expended study of LDLR to enhance steroidogenesis regarding the effect of lovastatin in the CCs. The collection of human cumulus cells was approved by the Institutional Research and Ethical Committees of CHA University (approval number: 1044308-201611-BR-027-04) from January to December 2019. The CCs were collected from 12 patients with normal ovarian response after oocyte denudation for ICSI.
Participants/materials, setting, methods: We studied whether lovastatin has up-regulated LDLR expression in human CCs. Cumulus cells were collected from patients with young (~ 36) and old aged patients (37 ~). After culturing human CCs, they were treated lovastatin for one day. The concentration of E2 in culture medium was measured using Chemiluminescence immunoassay. The mRNA isolated from CCs was analyzed gene expression level through real time-PCR.
Main results and the role of chance: The concentration of E2 was significantly increased in the culture medium treated with lovastatin. The CCs treated with lovastatin increased the expression of LDLR and StAR which are components of the steroidogenesis pathway.
Limitations, reasons for caution: We have found that the role of lovastatin promotes the E2 production by increasing the ldlr gene of CCs. Therefore, further investigations aimed at lovastatin effect on human oocytes embryo whether enhanced quality of oocytes or not.
Wider implications of the findings: Previous data show that high activation of LDLR and StAR was associated with embryo quality and clinical pregnancy in infertile women. Our data suggest that lovastatin is stimulated LDLR expression to enhanced pregnancy ratios of IVF patients.
Trial registration number: none