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Abstract

It has been reported that decorin (DCN) plays roles in some important processes such as follicle growth, ovulation, and retaining the corpus luteum by regulating growth factors, but its detailed functions are unknown. The association between DCN and the outcomes of infertility treatments has not been examined. This study investigated the concentration of DCN in mature follicular fluid and the existence in the granulosa cells. It also investigated whether DCN is useful as a biomarker for outcomes of assisted reproductive technology (ART). A retrospective cohort study was performed involving 130 oocytes of 88 patients treated with ART because of unexplained infertility. The concentration of DCN in the follicular fluid (F-DCN) was 39.26 ng/ml (median value); it was higher than that in serum. F-DCN of the oocytes fertilized by intracytoplasmic sperm injection (ICSI) was significantly lower than that of oocytes that were not fertilized (33.24 ng/ml vs 40.18 ng/ml; $P = 0.043$). When a cut-off level of 34.5ng/ml was set according to the receiver-operating characteristic curve, the fertilization rate of the oocytes from the follicles in which F-DCN was lower than the cut-off level tended to be good compared to that of the oocytes with F-DCN higher than the cut-off level ($P = 0.052$). DCN is less likely to be produced by the granulosa cells (GCs), because it was not detected in GCs by immunostaining and Western blot analysis. F-DCN has a possibility to be a biomarker indicating the quality of oocytes collected from the corresponding follicle.