Abstract BACKGROUND:

Matrix metalloproteinase-2 and -9, known as gelatinases, are considered to be essential for tissue remodelling during the reproductive process. However, their role in reproduction is unclear.

AIMS:

In the present study, we aimed to investigate the relationship between follicular fluid gelatinase levels and oocyte quality and fertilization, and to compare the activities of gelatinase levels with different drug stimulation protocols.

METHODS:

We evaluated 60 women with unexplained infertility who underwent in vitro fertilization (IVF) treatment. Thirty patients underwent a gonadotropin-releasing hormone (GnRH) agonist protocol and 30 underwent a GnRH antagonist protocol. Follicular fluid was obtained during oocyte retrieval. Oocyte quality was determined using light microscopy, and oocytes were considered to be fertilized when two pronuclei were present. Gelatinase activities were measured using commercial enzyme-linked immunosorbent assay kits. The study was partially supported by the Scientific Research Unit of Suleyman Demirel University (Protocol Number: 3620-TU1-13), and all procedures were conducted with the approval of the Suleyman Demirel University Local Ethics Board. Statistical analyses of the data were performed using the independent t test, Fisher exact test, Mann-Whitney U test, one-way ANOVA, and posthoc least significant difference.

RESULTS:

Follicular fluid gelatinase levels were significantly higher for agonist drug administration (p = 0.001), and a positive correlation was observed between matrix metalloproteinase-9 levels and oocyte grade (p = 0.01). Moreover, a positive relationship between matrix metalloproteinase-9 levels and fertilization was observed (p = 0.02).