

PREDNISOLONE SUPPRESSES NK CELL CYTOTOXICITY IN VITRO IN WOMEN WITH A HISTORY OF INFERTILITY AND ELEVATED NK CELL CYTOTOXICITY

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ABSTRACT

PROBLEM

To evaluate the effect of prednisolone on NK cell cytotoxicity in vitro environment and also to compare the effect of prednisolone versus immunoglobulin-G (IVIG) on NK cell cytotoxicity using in vitro co-culture with K562 cells.

METHOD OF STUDY

The following is a prospective observational study, between August 2006 and February 2007, was carried out on blood samples from 110 patients with a history of recurrent miscarriage or recurrent failed implantation. Peripheral blood mononuclear cells containing NK cells were isolated and co-cultured with target cell K562 in three different effector-to-target (E:T) ratios of 50:1, 25:1 and 12.5:1. Prednisolone or IVIG was then added to the tube with E:T ratio of 50:1 to assess suppressive effect. The percentage killing was recorded and statistical analysis performed using Student's t-test.

RESULTS

In the experiments with an E:T ratio of 50:1 without prednisolone or IVIG in the co-culture, the mean target cell killing percentage was 26.4%. In cultures using the same E:T ratio, this killing percentage was significantly reduced in the presence of IVIG (9.9%) or prednisolone (13.6%), ($P < 0.001$ in both analyses). On comparing the reduction in killing percentage of target cells by prednisolone versus IVIG, a slightly lower reduction in the prednisolone co-culture was noted but this was not statistically significant ($P > 0.05$).

CONCLUSION

The results of this study show that prednisolone is able to suppress the cytolytic activity of the NK cell. Prednisolone and IVIG are almost equally effective in suppressing in vitro NK cell cytolytic activity.