Background and Significance: Preimplantation genetic diagnosis and screening (PGD/PGS) is used for prevention of genetic diseases in the offspring of affected couples and selection of euploid embryos for transfer. The purpose of this study was to examine whether embryo biopsy or the associated loss of cytoplasmic volume alters the timing of implantation.

Design: Retrospective chart review of patients who presented for IVF with or without PGD/PGS from 2006 to 2013. The exposed group included patients who had blastomere biopsy on day 3 with transfer on day 5. The unexposed group included patients who underwent a day 5 embryo transfer without biopsy. Exclusion criteria were hCG<5 IU/mL, surgical sperm aspiration or uterine anomalies. Individual 1:1 matching was performed to randomly match PGD/PGS patients (n=70) with patients without PGD/PGS (n=70) treated in the same time period. hCG level was measured consecutively, 10 to 14 days, 17 to 21 days, and 24 to 28 days after embryo transfer.

Statistics: The Wilcoxon matched-pairs signed-ranks tests were used to assess the association between exposure status and hCG levels.

Results: Age, gravity, parity, BMI, FSH, E2, and embryo grade were not significantly different between patients with or without PGD/PGS. The mean number of sacs was 1.02 in PGD/PGS patients and 1.16 in non-biopsied patients (P=0.36), with a median of 1.00 for both. Patients with or without PGD/PGS had similar serum hCG levels at 10-14 days post transfer: 726.06 and 729.06 mIU/mL, respectively (P=0.12). Serum hCG measured 17-21 days and 24-28 days after transfer were also similar between patients with or without biopsy (P=0.12, P=0.58, respectively).

Conclusion: The results of our study indicate that the timing of blastocyst implantation and the normal pattern of hCG rise is not affected by embryo biopsy two days earlier.