OBJECTIVE MORPHOMETRIC PARAMETERS FOR DAY 2 EMBRYO QUALITY ASSESSMENT
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Multiple pregnancies carry a significant risk for maternal-fetal health. These risks can be decreased by reducing the number of transferred embryos. Embryo quality assessment based on morphologic criteria is highly subjective. It is essential to develop new tools for selecting the embryos with the highest implantation potential. The aim of this study is to demonstrate the usefulness of embryonic morphometric variables. A retrospective study of 346 embryo photographs coming from: 50 two embryo transference without pregnancy (implantation 0%), 66 with singleton pregnancy (implantation 50%) and 57 with twin pregnancy (implantation 100%). All the embryos were 4-cells, equal symmetrical and had mononucleated blastomere. Only women less than 36 years old were included and cycles with endometriosis, low response and repeated abortions were excluded. The embryo photographs were analyzed by using ImageJ. The effect of the morphometric embryo variables and the clinical variables of the couple on implantation was evaluated by using a multinomial logistic regression. The only significant differences were observed for woman’s age and for the morphometric variables internal perimeter and circularity factor. Embryos smaller, with circular shape and smaller ZP thickness, are more likely to implant. The morphometric variables related to the embryo shape and size and ZP thickness which could not be assessed by only optical observation were objective factors to consider when predicting implantation. This method is a fast, efficient and an accurate tool which could improve IVF outcomes and would also help to reduce twin pregnancies.