

# IS OBTURATOR USE COMPROMISING PREGNANCY RATES IN PATIENTS WITH POOR EMBRYO GRADE?: A SINGLE-SITE RETROSPECTIVE COHORT STUDY

Amanda M. Ryan, M.D., Mark Sanchez, M.D. FACOG

## Background

- Embryo transfer (ET) is a crucial step in the process of in vitro fertilization (IVF).
- The actual technique for ET has been studied extensively, however there is still a significant amount of variability among fertility specialists<sup>1,2</sup>
- The objective of this study is to evaluate if malleable obturator use during embryo transfers has a negative effect on transfer success signified by positive pregnancy test and clinical pregnancy rates in regards to embryo grade.

## Materials and Methods

- A retrospective chart review of every 8th patient who underwent ET at a private fertility center from 2016-2022 was conducted.
- Univariate comparisons, independent t-test and chi-square tests of independence or fisher exact tests were conducted. Pairwise deletion was used for any missing data points. Binary/multivariate logistic regression was used to assess key factors. All analyses were conducted using SPSS version 29 (IBM, Inc., Chicago).

“Patients with poor/average embryo grade were significantly less likely to have a positive clinical pregnancy when an obturator was used (21.3% vs 6.6%), p=0.001”

## Results

- 236 patients were included in the study. The average age was 33.8 years in the obturator group and 34.1 in the no obturator group. The majority of patients were non-hispanic white (64.3% vs 65.1%). 84 patients (36%) had an obturator used during their ET.
- After adjusting for demographic and implantation factors, obturator use during ETs had an overall 54% reduction in positive beta-hCG (OR .460, p=.026), and 50% reduction in CP rates (.499, p=.037).
- Patients with poor/average embryo grade were significantly less likely to have a positive β-hCG irrespective of obturator use (Table 1). CP rates in patients with poor/average embryo grade with obturator were significantly less (Table 2). Patients with good/excellent embryo grades had increased CP rates when an obturator was not used (Table 2).

## Conclusions

- Obturator use during ETs significantly reduces positive CP rates in patients with poor/average embryo grade. Obturator use should be used judiciously in these patients.
- In patients with good/excellent embryo grade, there were higher positive β-hCG and CP rates in patients without obturator use.
- In patients with good/excellent embryo grade, transfer success and CP rates are improved without the use of an obturator.
- Further randomized studies should be done to evaluate this association further.

## References

Tyler B, Walford H, Tamblin J, Keay SD, Mavrelou D, Yasmin E, Al Wattar BH. Interventions to optimize embryo transfer in women undergoing assisted conception: a comprehensive systematic review and meta-analyses. Hum Reprod Update. 2022 Jun 30;28(4):480-500. doi: 10.1093/humupd/dmac009. PMID: 35325124; PMCID: PMC9631462.

Ressler IB, Pakrashi T, Sroga JM, DiPaola KB, Thomas MA, Lindheim SR. Effects of embryo transfer catheters on the endometrial surface noted at hysteroscopy. J Minim Invasive Gynecol. 2013 May-Jun;20(3):381-5. doi: 10.1016/j.jmig.2013.01.004. Epub 2013 Mar 15. PMID: 23506714.

	Positive β-hCG	Negative β-hCG
Poor/Average with Obturator	7.1% (8)*	24.4% (21)*
Poor/Average without Obturator	19.5% (22)*	32.6% (28)*
Good/Excellent with Obturator	23.0% (26)	16.3% (14)
Good/Excellent without Obturator	50.4% (57)*	26.7% (23)*

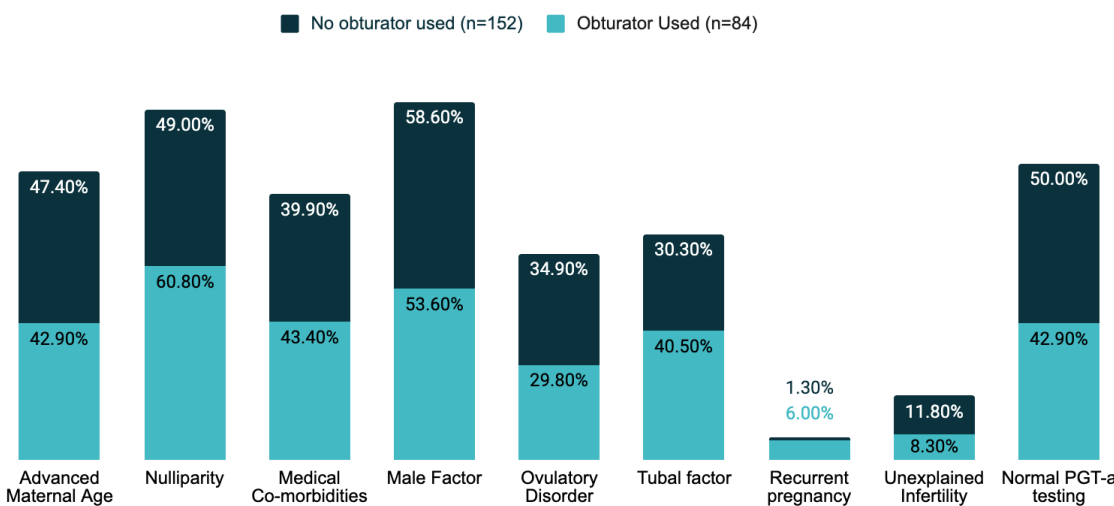
Table 1. B-hCG with Embryo Grade and Obturator Use (N=199), \* indicates p-value ≤.001

	Positive Clinical Pregnancy	Negative Clinical Pregnancy
Poor/Average with Obturator	6.6% (6)*	21.3% (23)*
Poor/Average without Obturator	19.8% (18)	29.6% (32)
Good/Excellent with Obturator	22.0% (20)	18.5% (20)
Good/Excellent without Obturator	51.6% (47)*	30.6% (33)*

Table 2. CP rates with Embryo Grade and Obturator Use (N=199), \* indicates p-value ≤.001

	Positive biochemical pregnancy	Negative biochemical pregnancy
Poor/Average with Obturator	9.1% (2)	6.6% (6)
Poor/Average without Obturator	18.2% (4)	19.8% (18)
Good/Excellent with Obturator	27.3% (6)	22.0% (20)
Good/Excellent without Obturator	45.5% (10)	51.6% (47)

Table 3. Biochemical pregnancy with Embryo Grade and Obturator Use (N=113), \* indicates p-value ≤.001



Graph 1. Demographic and Implantation Factors (n=236), p-values all >0.05