

## INTRODUCTION

Caesarean rate in North America accounts for over 25% of deliveries, which is known to increase maternal-foetal morbidity-mortality compared to natural delivery. However, few data exist on the consequence of a caesarean scar on the pregnancy rate during IVF. The purpose of this study was to determine if there is an impact of a caesarean scar on the pregnancy rate with frozen embryo transfer (FET). Furthermore we wanted to analyse the difficulty of transfer in the FET.

## METHODS

A retrospective data analysis was performed including all patients who had their first baby by IVF in our center, following either IVF or FET, and then underwent a subsequent FET. Patients were recruited between January 2010 and January 2017. The clinical pregnancy rate was compared between the two groups of patients according to delivery method: vaginal vs. caesarean section. The difficulty of transfer was divided into three categories based on the medical notes at the time of the FET: easy, medium or difficult.

## RESULTS

We recruited 495 patients (302 vaginal deliveries and 193 caesarean deliveries). There was no difference between the groups in terms of attempt number prior to the first baby, the time delay between the first baby and the subsequent FET or the endometrial thickness obtained at the FET. However there was significant difference in the age, as patients having had caesarean were older (34.9 +/-4.2 vs. 36.7 +/- 5.5 years old, p<0.001), and the BMI was higher (24.8 +/- 4.9 vs. 26.1 +/- 5.4 kg/m<sup>2</sup>, p<0.01) There was more egg donation in the group who had a caesarean section (4,0% vs. 15,0%, p<0,05), although a sub-analysis demonstrated that this did not affect the pregnancy rate. No difference of clinical pregnancy rate was found

between the 2 groups (37.4% vs. 36.3%, p= 0.80). However the risk of having a difficult embryo transfer following a caesarean delivery was statistically higher (0.3% vs. 5.7%, p< 0.01, OR=18.7).

**Table 1.** Rate of pregnancy depending on the previous delivery method.

Values are reported as mean ± standard deviation or number of patients with percentage.

	Previous vaginal delivery group (n=302)	Previous cesarean section group (n=193)	p value
Number of transferred embryos	1.14 ± 0.35	1.13 ± 0.35	0.84
Biochemical pregnancy rate	37.4% (113/302)	36.8% (71/193)	0.85
Clinical pregnancy rate	37.4% (113/302)	36.3% (70/193)	0.80
Ectopic pregnancy rate	2.7% (3/113)	1.4% (1/70)	0.57

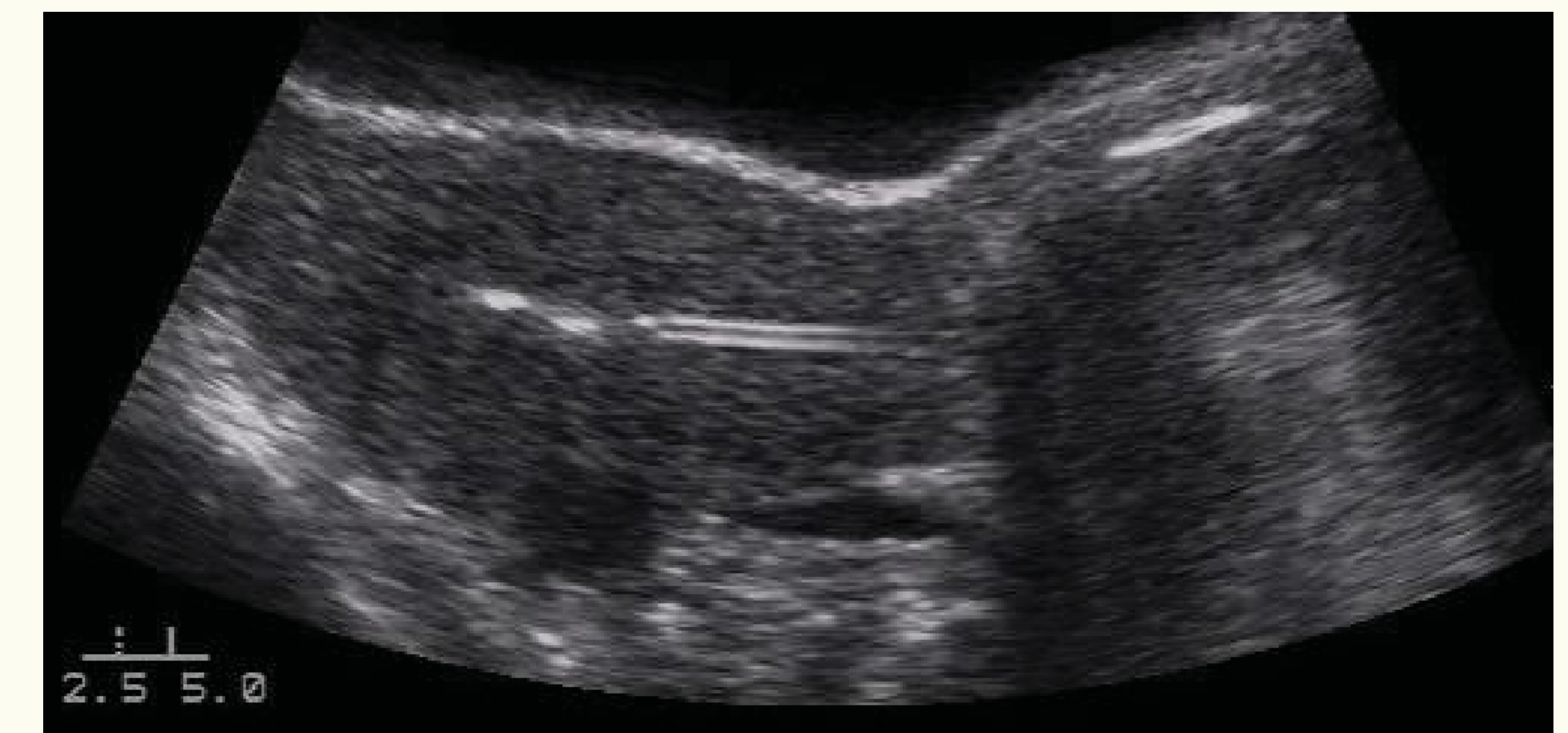
**Table 2.** Ease of embryo transfer depending on the previous delivery method.

Values are reported as number of patients with percentage.

Transfer difficulty	Previous vaginal delivery group (n=302)	Previous cesarean section group (n=193)	p value	Odds Ratio (95% CI)
Easy	98.7% (298/302)	90.6% (175/193)	-	-
Medium	0.3% (1/302)	3.1% (6/193)	< 0.05	10.2 (1.2 - 85.6)
Difficult	0.3% (1/302)	5.7% (11/193)	< 0.05	18.7 (2.3 - 141.9)
Unknown	0.7% (2/302)	0.5% (1/193)	-	-

## CONCLUSIONS

It is already known that patients having caesarean delivery are older and have a higher BMI than those who deliver vaginally. Based on our data, the incidence of a caesarean does not reduce the clinical pregnancy in a subsequent FET however the risk that the embryo transfer is difficult is increased.



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