

# COMPARISON OF IVF AND NON-IVF PATIENTS WHO HAVE OPTED FOR THE NON-INVASIVE PRENATAL TEST, 5 YEAR EXPERIENCE

**AUTHORS:** Res Muravec U, Lomsek M, Bernik J, Meglic P, Rant Hafner S, Tul Mandic N, Premru Srsen T

**INSTITUTION NAME:** Dravlje Health Centre, **INSTITUTION COUNTRY:** Slovenia, **INSTITUTION TOWN:** Ljubljana

## ABSTRACT OBJECTIVE

The aim of the study was to evaluate demographic and clinical characteristics of IVF and non-IVF patients who opted for the cell-free fetal DNA test (cffDNA test), and the results of cffDNA testing.

## ABSTRACT METHODS

This was a retrospective observational study. We included all patients who opted for cffDNA test from 2012 to 2016 in Dravlje Health Centre, Slovenia. For statistical analysis we used standard T-test and Chi-Squared Test.

## ABSTRACT RESULTS

Out of 540 patients who opted for cffDNA test, 114 patients (21%) conceived after IVF treatment, and 426 patients (79%) conceived spontaneously. IVF patients were significantly older (36,4 vs. 38 years;  $p < 0.001$ ), and cffDNA tests were performed at a lower gestational age compared to the non-IVF group (13,7 vs. 12,65;  $p = 0.0163$ ). There were significantly more twins in IVF (18%) than in non-IVF (2%) group ( $p < 0.001$ ). There were no significant differences in weight or height of the patients. In 91% of non-IVF and 96% of IVF patients also nuchal translucency scan was performed. No screening for aneuploidies was carried out in 7% of non-IVF and 4% of IVF patients. In this period six cases of Down syndrome and two cases of trisomy 13 were detected. There were two false positive cases for Turner syndrome, and one case was false positive for trisomy 16. There were no cases of false negative tests. In one case, no result 1/540 (0,002%) was obtained after 3 redraws.

### COMPARISON OF IVF AND NON-IVF PATIENTS WHO HAVE OPTED FOR THE NON-INVASIVE PRENATAL TEST FROM 2012 TILL 2016

	All Patients	Non-IVF Patients	IVF Patients	Statistical significance
Patients	540	426	114	
Age	35,7	36,4	38	$p < 0.001$
Gestation	14,1	13,7	12,65	$p = 0.0163$
Weight	64	65	61	No significant difference
Height	165	165	165	No significant difference
Twins	5%	2%	18%	$p < 0.001$

### PRIOR SCREENING

	All Patients	Non-IVF Patients	IVF Patients	Statistical significance
NT screen Only	49%	45%	65%	$p < 0.001$
NT + DHT	42%	46%	31%	$p = 0.00441$
THT or QHT	2%	2%	0%	No significant difference
None	6%	7%	4%	No significant difference

### INDICATIONS FOR NIPT

Indication	Number	Percentage
Medical history of chromosomal abnormalities	4	0,7%
Family history	2	0,4%
Younger than 37 + High Risk Prior Screening	47	8,7%
Older than 37 + High Risk Prior Screening	61	11,3%
Older Than 37	236	43,7%
Without indications	190	35,2%

### CELL-FREE FETAL DNA TESTING OUTCOMES

Outcome	Number	Percentage
Low Risk	529	98,0%
High Risk	10	1,85%
Resample	16	2,96%
No Call	1	0,002%

### CELL-FREE FETAL DNA TESTING OPTIONS

Option	Percentage
NIFTY Basic	2%
NIFTY Standard	15%
NIFTY Plus	77%
NIFTY Twins	6%

### Average time (days) from venipuncture till results in 2016

7,5

### HIGH RISK CELL-FREE FETAL DNA TESTING OUTCOMES

Age	Prior Risk T21	Prior Risk T18	Prior Risk T13	NIPT result	Karyotype (AC or HVS)	Outcome	Type of pregnancy
38	654	7161	20000	T21	T21	True positive	Non-IVF
33	12	12861	20000	T21	T21	True positive	Non-IVF
45	408	322	4222	T21	T21	True positive	Non-IVF
31	49	371	789	T21	T21	True positive	Non-IVF
35	17	229	390	T21	T21	True positive	Non-IVF
33	805	140	162	T21	T21	True positive	Non-IVF
26	4853	7180	18974	T13	T13	True positive	Non-IVF
36	5700	1027	320	T13	T13	True positive	Non-IVF
40	0	0	0	XO	Normal	False positive	Non-IVF
38	3118	7151	20000	XO	Normal	False positive	Non-IVF
34	49	394	243	T16	Normal	False positive	Non-IVF

## ABSTRACT CONCLUSION

According to our experience, compared to non-IVF patient, the patients who conceived after IVF are older, more often pregnant with twins, and they decide for cffDNA testing earlier during pregnancy.