

# GROWTH HORMONE IMPROVES EGG RETRIEVAL RATES IN POOR OVARIAN RESPONDERS

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## OBJECTIVE

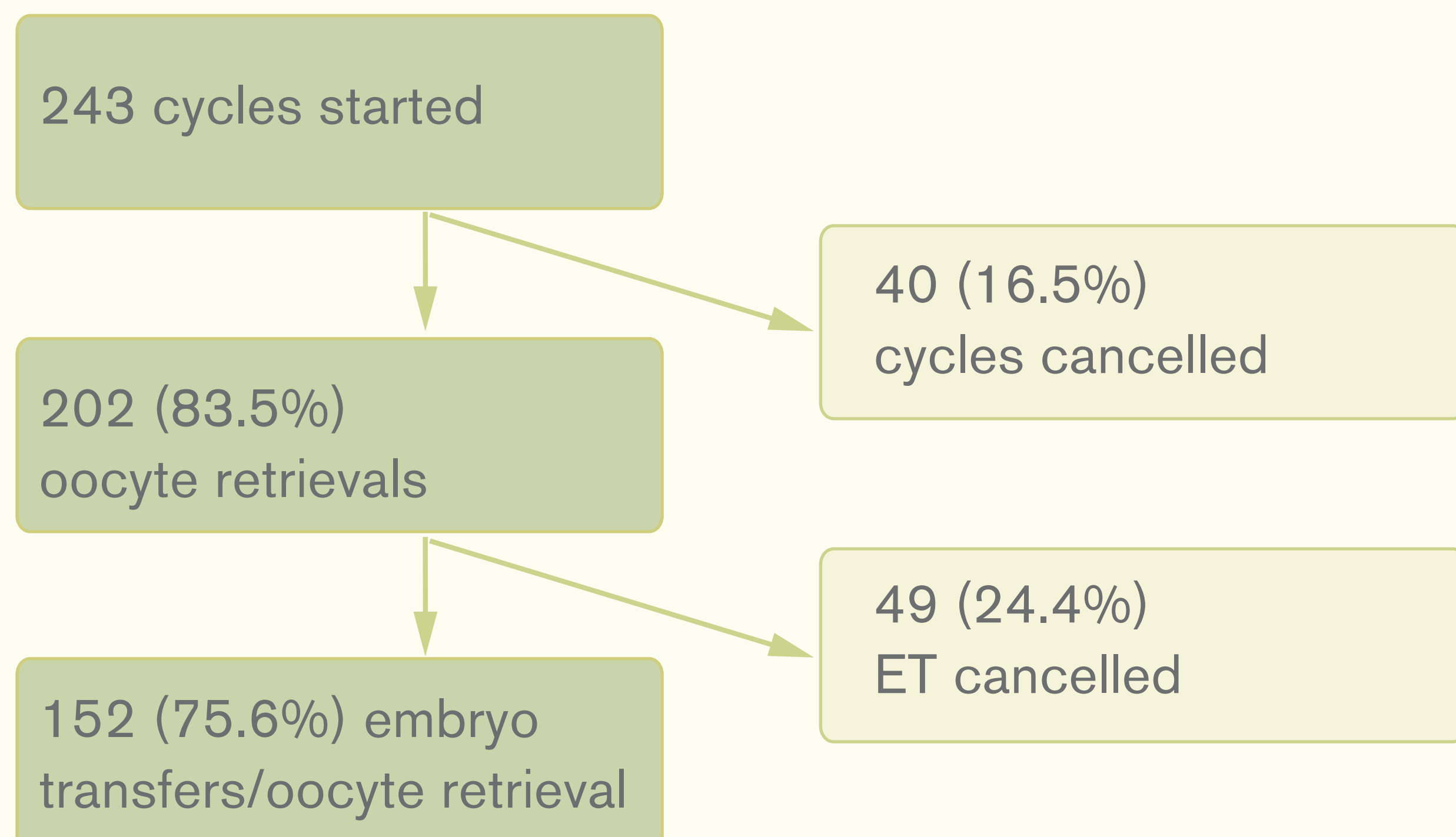
Comparison of clinical outcomes in the SMART (Stimulation with Minimal Adverse effects, Retrieval and Transfer) protocol with and without the use of GH (Growth Hormone) in poor ovarian responders.

## DESIGN

In a retrospective cohort analysis, we compared the outcomes of the SMART protocol with and without the use of GH over the period of January 2008 to November 2011. The SMART IVF protocol that has been designed for use in poor ovarian responders as an ultimate alternative before recommending egg donation, aiming to privilege oocyte quality rather than quantity. GH is used as adjunctive therapy in poor ovarian responders again with the aim of improving oocyte quality.

## MATERIALS AND METHODS

Patient characteristics and clinical outcomes were compared. Statistical analysis using Fisher Exact Test, student t-test, and Chi-squared test were used, and a p-value of < 0.05 was considered statistically significant.



## RESULTS

There was a total of 243 SMART cycles, 55 (23%) with and 188 (77%) without the addition of GH. Mean female age (38.2) was comparable between both groups. Ovarian reserve tended to be lower in GH group (mean AMH 1.14 vs. 1.36nmol/l), but this did not reach statistical significance. There was a statistically significant increase in the rate of egg retrieval in the GH group (98.2% vs. 79.3%, p <0.001), which corresponded also to a significantly decreased number of cancelled cycles (1.8% vs. 20.7%, p <0.001). The mean number of eggs retrieved (8.37 in both groups), mature eggs (74.3% vs. 72.7%), fertilization rate (61.0% vs. 56.2%), transfer rate (79.6% vs. 73.8%), implantation rate (16.4% vs. 16.7%), clinical pregnancy rate per cycle (18% vs. 20%), and number of frozen embryos (1.51 vs. 1.39) were comparable between the groups with and without GH, respectively.

Results of SMART based on age			
	<38 years	38 years or more	p value
Cycles started	94	149	
Oocyte retrieval	83 (88.3%)	119 (80.4%)	0.11*
Number of oocytes collected (mean, SD)	10.4 (7.5)	6.8 (4)	<0.001**
Embryo transfer/oocyte retrieval	60 (73.2%)	92 (77.3%)	0.50*
Number of ET (mean, SD)	1.5 (0.68)	2.1 (1.17)	<0.001**
Clinical pregnancy	24	20	
Per cycle	25.5%	13.4%	0.02*
Per embryo transfer	40.0%	21.7%	0.01*
Single pregnancies	22 (92%)	18 (90%)	0.10†
Twin pregnancies	2 (8%)	2 (10%)	

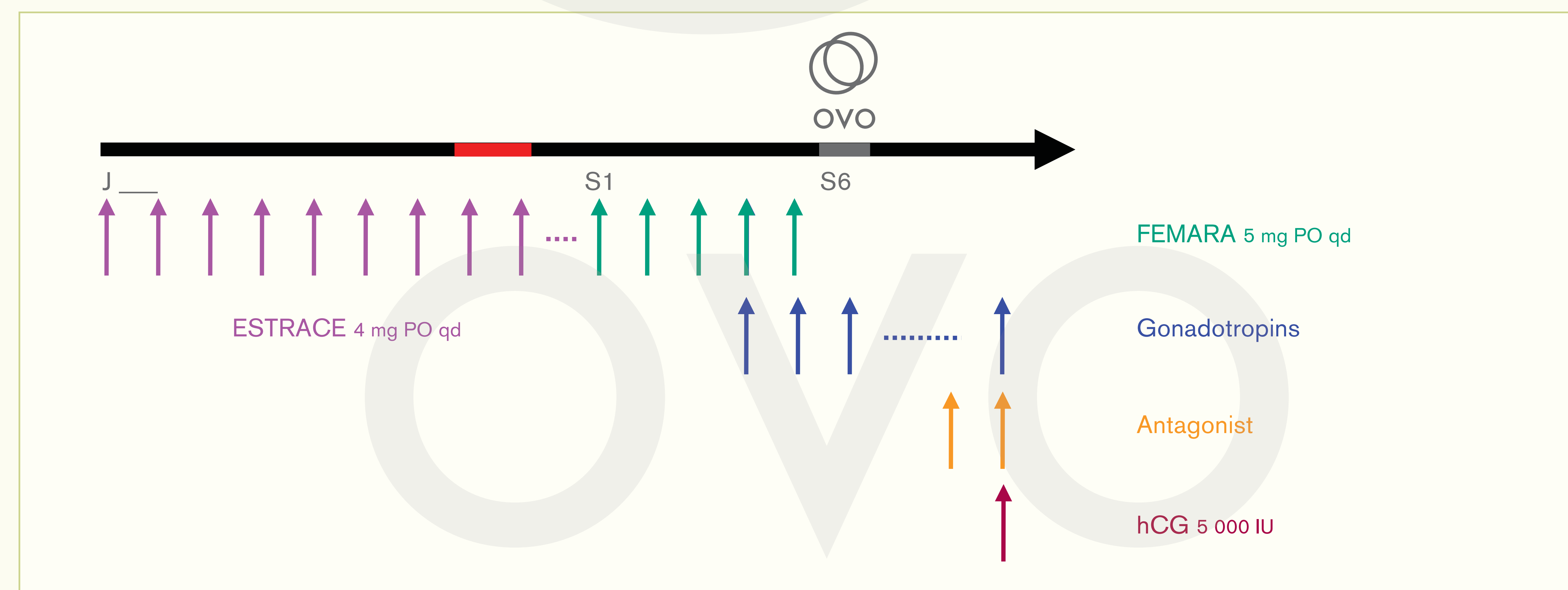
\* Chi squared ; \*\* Test unequal variances ; † Fisher exact test

### Results with and without use of Growth Hormone

	Growth Hormone (Saizen®)		p value
	No	Yes	
Cycles started	188 (77.4%)	55 (22.6%)	
Oocyte retrieval	148 (78.7%)	54 (98.2%)	0.003*
Number of oocytes collected (mean, SD)	8.3 (6.1)	8.4 (5.6)	0.9**
Embryo transfer/oocyte retrieval	109 (74.2%)	43 (79.6%)	0.42*
Number of ET (mean, SD)	2 (1.12)	1.53 (0.70)	0.003†
Clinical pregnancy	33	11	
Per cycle	17.6%	20.0%	0.7*
Per embryo transfer	30.3%	25.6%	0.6*
Single pregnancies	29 (88%)	11 (100%)	0.6††
Twin pregnancies	4 (12%)	0 (0)	

\* Chi squared ; \*\* ANOVA ; † Test unequal variances ; †† Fisher exact test

### S.M.A.R.T. (Stimulation with Minimal Adverse effects, Retrieval and Transfer)



## CONCLUSIONS

Utilization of GH supplements significantly improves egg retrieval rates and reduces cancellation rates in SMART protocols for poor ovarian responders.