Supplemental table. Univariable analyses (Grade I versus non-grade I)

A. Patient factors associated with embryo grade[1]

Risk Factors	Grade I embryos	Non-grade I embryos	P value[2]
ATRA (pmol/mL)	7.4 (5.2,9.5) 29[3]	4.5 (3.6,5.4) 102	0.024
Age (years)	35.9 (34.0,37.8) 23[4]	34.1 (32.8,35.3) 53[5]	0.12
BMI (kg/m^2)	28.5 (25.8,31.2) 23	25.2 (23.4,27.0) 53	0.05
Day 3, FSH (IU/L)	8.6 (7.0,10.1) 22	8.2 (7.2,9.2) 47	0.69
Peak E2 (pg/mL)	1958 (1528,2388) 23	1876 (1592,2159) 53	0.75
Total gonadotropins(pmol/mL)	3538 (2779,4297) 23	3140 (2640,3640) 53	0.39
Antral follicle count (AFC)	19.0 (12.6,25.4) 23	24.1 (19.9,28.3) 53	0.18

[1]76 women and 131 follicles were evaluated: 23 women (29 follicles) with grade I and 53 women (102 follicles) with non-grade I (regardless of oocyte quality or recovery).
[2]Grade I versus non-grade I
[3]Mean (95% confidence interval) number of follicles. Means are model-based means (not raw means) obtained from a repeated measures analysis of ATRA concentration from each ovary. The model-based means are the estimated means taking into consideration the fact that not all women have ATRA measurements from both ovaries.
[4]Mean (95% confidence interval) number of women with at least one grade I embryo from the two follicles studied.
[5]Mean (95% confidence interval) number of women with no grade I embryos from the two follicles studied.

B. Logistic regression models of embryo grade[1] by ATRA concentrations

Tertile Groups ATRA (pmol/mL)	Grade I	Non-Grade I	Odds Ratio (OR)[2]	OR (95% CI)[3]	P Value[4]
≤3.70[5]	17.2% (5/29)	37.3% (38/102)	1.0	1.0	0.034
>3.70-5.79	31.0% (9/29)	35.3% (36/102)	1.90	1.86 (0.93,3.72)	
>5.79	51.7% (15/29)	27.5% (28/102)	4.07	3.04 (1.32,7.00)	

[1]Grade I versus non-grade I
[2]Independence model
[3]Generalized estimating equations (GEE) for clustered data model
[4]Calculated from the GEE clustered data model
[5]The first/lowest ATRA tertile (≤ 3.70 pmol/mL) is the reference level