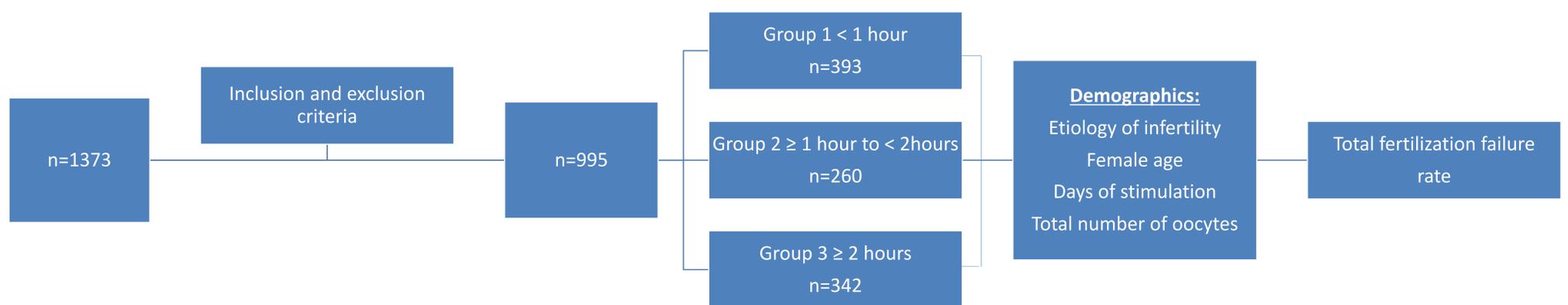


### BACKGROUND and AIM

With the advancements in Assisted Reproductive Technology (ART), fertilization and pregnancy rates in *in vitro fertilization* (IVF) continue to improve. Microinjection of viable sperm theoretically alleviates male contribution to infertility. However, even with intracytoplasmic sperm injection (ICSI), total fertilization failure (TFF) continues to persist. This study aims to evaluate the effect of oocyte denudation from oocyte incubation after retrieval in TFF among IVF-ICSI cycles and to identify factors affecting TFF.

### METHODS

This is a retrospective cohort study involving 995 stimulated cycles using the antagonist protocol, excluding ICSI from surgically retrieved sperm. Samples were clustered into three timings of oocyte denudation from retrieval: Group 1: <1hour (n=393), Group 2: ≥1hour to <2 hours (n=260) and Group 3: ≥2hours (n=342). Other variables considered were etiology of infertility, female age, days of stimulation and total number of oocytes retrieved. TFF across groups were determined and analyzed.



### RESULTS

Overall TFF was 4.5%. TFF among groups were 4.8%, 5.8% and 3.2%, respectively. Female age and days of stimulation were similar among groups (36.3, 36.8, 36.4 years and 10.9, 11, 11 days), while the total number of oocytes retrieved were significantly highest in Group 3 (11.3 vs 9.5 and 8.7 in Groups 2 and 3,  $p < 0.001$ ) and the distribution of etiology of infertility was significantly varied ( $p < 0.002$ ). Multiple logistic regression analysis showed that incubation of oocyte prior to denudation for at least 2 hours tend to decrease TFF rate incidence, however, was not statistically significant. Among the etiologies of infertility, male factor seemed to increase the incidence of TFF. Total number of oocytes significantly affect the occurrence of TFF, decreasing the incidence by 35.7% for every single increase in oocyte number ( $p < 0.001$ ).

**Table 1. Multiple logistic regression analysis of the predictors of total fertilization failure**

Variables	Odds Ratio	95% confidence interval		p value
		lower	upper	
<b>Timing of denudation</b>				<b>0.848</b>
Group 1*				
Group 2	1.13	0.53	2.40	
Group 3	0.88	0.39	1.98	
<b>Etiology</b>				<b>0.027</b>
Female				
Male	7.13	1.96	25.98	0.003
Mixed	1.58	0.79	3.14	0.192
Unexplained	1.58	0.33	7.58	0.570
<b>Female age</b>	<b>0.94</b>	<b>0.87</b>	<b>1.02</b>	<b>0.126</b>
<b>Days of stimulation</b>	<b>1.07</b>	<b>0.92</b>	<b>1.23</b>	<b>0.381</b>
<b>Total oocytes retrieved</b>	<b>0.64</b>	<b>0.56</b>	<b>0.74</b>	<b>&lt;0.001</b>

### CONCLUSIONS

Timing of incubation of oocyte did not statistically affect occurrence of TFF. Among factors studied, male factor infertility and a low number of oocytes adversely affect TFF.

### ACKNOWLEDGEMENTS

The authors would like to give credits to Mr. Arnel Gamilde, RMT for his aptness in IVF laboratory and embryology, and Dr. Macario Reandelar, Jr. for interpreting our data through his expertise in statistical analysis.