

ABSTRACT

Design: It is a prospective study at a fertility clinic specialized in treating patients with severe male factor infertility.

Materials and Methods: The immotile sperm from 34 patients were treated with Pentoxifylline and 78 with Theophylline to identify viable sperm for ICSI. The sources of sperm were; normal ejaculates (8), TESE (2), Micro-TESE (64), MESA (11) and TESA (27). Mean \pm SD ages were 38.9 \pm 10.7 yrs for men and 31.7 \pm 6.2 yrs for women. The ovarian stimulation, oocytes retrieval, sperm processing, ICSI and ET were performed by standard protocols. Pentoxifylline and Theophylline were added to ICSI drops and eggs were injected with motile or shaking sperm whenever available. Means were compared by t-test.

Results: Ages of men and women were similar in both groups. Number of eggs injected or fertilized, number transferred, biochemical pregnancies and clinical pregnancies were also similar. Pentoxifylline was effective in 88% cases and Theophylline in 90% cases. The miscarriage rate (9%) in Pentoxifylline treated cases was significantly higher than that in Theophylline (1.2%). So far 11 deliveries of normal babies have been reported; 2 from Pentoxifylline and 9 from Theophylline.

Conclusions: Theophylline is safe in identifying viable sperm for ICSI in cases of all non motile sperm. Pentoxifylline resulted in significantly higher miscarriages.

OBJECTIVE

Pentoxifylline and Theophylline are used to identify viable sperm for ICSI in patients with all immotile spermatozoa. Although Pentoxifylline is an effective tool, its use is controversial due to its possible detrimental effects on oocytes, embryos and new born. Theophylline is another similar compound that is efficient in stimulating immotile spermatozoa. The objective of this study was to compare outcome of ICSI cycles after use of these 2 compounds.

MATERIALS AND METHODS

Total male patients were 112. The immotile sperm from 34 were treated with Pentoxifylline and 78 with Theophylline to identify viable sperm for ICSI. The sources of sperm were normal ejaculates (8), TESE (2), Micro-TESE (64), MESA (11), and TESA (27). The Mean \pm SD ages were 38.9 \pm 10.7 yrs for men and 31.7 \pm 6.2 yrs for women. The ovarian stimulation, oocytes retrieval, sperm processing, ICSI and embryo transfer were performed by standard protocols. Pentoxifylline and Theophylline were added to ICSI drops and eggs were injected with motile or shaking sperm whenever available. Parameters were calculated as Mean \pm SD and percentages. Means were compared by t-test.

RESULTS

Table 1 compares parameters in 2 groups. Ages of men and women were similar in both groups. Number of eggs injected/fertilized, number transferred, biochemical pregnancies and clinical pregnancies were also similar. Pentoxifylline was effective in 88% cases and Theophylline in 90% cases. In remaining 10 cases where non-motile sperm were injected 9 were frozen-thawed resulting in no or very poor fertilization. The study is ongoing. The miscarriage rate (9%) in Pentoxifylline treated cases is significantly higher than that in Theophylline treated cases (1.2%). So far 11 deliveries of normal babies have been reported; 2 from Pentoxifylline and 9 from Theophylline.

Table 1: Outcome of ICSI after use of Pentoxifylline and Theophylline.
(Values for Age, # ICSI, # Fert and # ET are Mean \pm SD)

	Patients	Age Male	Age Female	# ICSI	# Fert	# ET	Preg Bio: # (%)	Preg Clin: # (%)
Pentoxifylline	34	38.3 \pm 11	32.2 \pm 6.4	9.0 \pm 6.6	4.5 \pm 3.6	2.0 \pm 0.7	11 (32.4)	7 (20.6)
Theophylline	78	39.2 \pm 10.7	31.5 \pm 6.1	8.4 \pm 5.0	3.6 \pm 2.7	2.0 \pm 0.7	26 (33)	17 (22)
Over All	112	38.9 \pm 10.7	31.7 \pm 6.2	8.6 \pm 5.6	3.9 \pm 3.0	2.0 \pm 0.7	37 (33)	24 (21)

Fig 1: Proportion of sperm sources

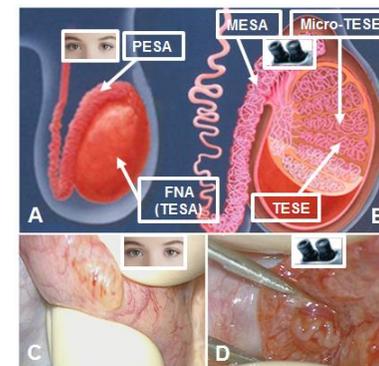
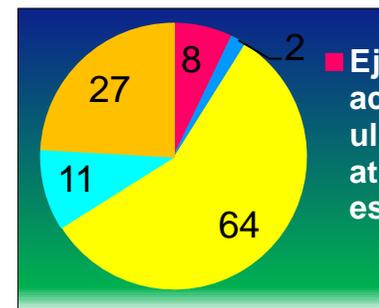


Fig 2. Sites of surgically retrieved sperm

CONCLUSIONS

Theophylline is safe in identifying viable sperm for ICSI in cases of all non motile sperm. Pentoxifylline resulted in significantly higher miscarriages.