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Electroejaculation in psychogenic anejaculation

Timo F. W. Soeterik, B.Sc.,[a] Paul W. Veenboer, M.D.,[a] and Tycho M. T. W. Lock, M.D., F.E.B.U.[a,b]

[a] Department of Urology, University Medical Center Utrecht, Utrecht, the Netherlands; and [b] Central Military Hospital, Utrecht, the Netherlands

Objective: To evaluate the results of treatment with electroejaculation (EEJ), intrauterine insemination (IUI), and IVF/intracytoplasmic sperm injection (IVF/ICSI) in patients with psychogenic anejaculation (PAE).
Design: Retrospective clinical study.
Setting: Academic tertiary referral fertility center.
Patient(s): Eleven male patients diagnosed with psychogenic anejaculation (PAE) were included. Median age at the time of first treatment with EEJ was 33.0 (interquartile range, 29.0–36.0) years.
Intervention(s): Electroejaculation, IUI, and IVF/ICSI.
Main Outcome Measure(s): Semen analysis, fertilization rate, implantation rate, pregnancy rate, and delivery rate.
Result(s): A total of 60 EEJs were performed in 11 patients. Mean VCM (volume [mL] × concentration [sperm cells/mL] × percentage progressive motile cells) of the retrieved sperm of all EEJs was 17.5×10^6 (SD 16.5×10^6). Yielded semen was used in a total of 26 ICSI procedures in seven couples. The fertilization rate was 65.6% (80 of 122). The ICSI cycles resulted in five pregnancies; of these, one resulted in a spontaneous abortion in the first trimester. Three couples were treated with 34 IUI cycles, which resulted in live births in four pregnancies.
Conclusion(s): Electroejaculation is a suitable and effective treatment that can be used in men with psychogenic anejaculation. The retrieved semen can be used successfully in assisted reproductive technology treatment. In this study EEJ resulted in pregnancies and the birth of eight healthy children. (Fertil Steril® 2014;■:■–■. ©2014 by American Society for Reproductive Medicine.)
Key Words: Psychogenic anejaculation, electroejaculation, fertilization rates, intracytoplasmic sperm injection

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Anejaculation is a rare cause of male subfertility, accounting for 2% of all cases. Individuals with a psychogenic origin of anejaculation account for approximately 0.4%–0.5% of these cases (1, 2). Although these latter patients are generally healthy individuals that may have erections and nocturnal emissions, they cannot ejaculate. Although psychogenic anejaculation is not the rarest cause of anejaculation, it is probably the least understood. Over the years, various terms have been used for this phenomenon, including primary anejaculation (3), inhibited ejaculation (4), idiopathic anejaculation (5), *primary impotentia ejaculationis* (6), and retarded ejaculation (7). Because there is no consensus on the definition, the term "delayed ejaculation" has been suggested to describe the group of ejaculatory disorders that cause a delay or complete absence of ejaculation (8). However, men with delayed ejaculation can, theoretically, achieve ejaculation. In our opinion the term "psychogenic anejaculation" (PAE) is the best term to describe this problem.

Electroejaculation (EEJ) is a treatment for anejaculation that is also suitable for men with PAE. The obtained semen can be used in assisted reproductive technology (ART), such as IUI, IVF, and intracytoplasmic sperm injection (ICSI).

In this study we evaluate the semen characteristics and results of ART in our center and compare these results with previous data.

MATERIALS AND METHODS

Under current Dutch law the present study was exempt from formal ethical evaluation, although the principles of the Declaration of Helsinki were followed.

A retrospective chart analysis was performed of all the ±300 EEJs carried out at our center from January 1, 1994,

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Reprint requests: Timo F. W. Soeterik, B.Sc., Department of Urology, University Medical Center Utrecht, Donkerstraat 27bis, 3511 KB, Utrecht, the Netherlands (E-mail: t.f.w.soeterik@students.uu.nl).

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to January 1, 2013. Of these, a total of 60 EEJs were performed in patients with PAE, which we have evaluated.

Data were collected on patients' general medical history, age, number of received stimulations, semen quality according to World Health Organization standards (9), fertilization rates, implantation rates, and number of pregnancies and live births. Total motile sperm count (VCM; i.e., the total number of progressive sperm cells in a sample) was calculated (volume [mL] × concentration [sperm cells/mL] × percentage progressive motile cells) and compared with other relevant studies.

Before the patients visited our institution all had undergone extensive sexological analysis and psychotherapy, but none had responded to the treatments received. At our center a history was taken of all patients and a physical examination performed. No indications of an organic cause of anejaculation were found, and no abnormalities that might explain the anejaculation were seen on ultrasonographic examination of the scrotum and prostate. All patients had normal LH, FSH, T, and PRL levels. At the time of EEJ none of the patients had a urinary tract infection. One patient also had erectile dysfunction; because this patient occasionally experienced erections, he met the requirements for the diagnosis as described by Hovav et al. (10) and could therefore be included. All patients experienced nocturnal sperm emissions. None of the patients could experience ejaculation during sexual intercourse or masturbation.

In addition to evaluating our own patients, a literature search was performed using PubMed. No limitations to the search were imposed. The following search terms were used: "psychogenic anejaculation," "idiopathic anejaculation," "anejaculation," "primary anejaculation," "delayed ejaculation," "ejaculatory disorder," "electroejaculation," and "penile vibratory stimulation."

All patients received EEJ according to Lucas et al. (11) under general anesthesia. A Foley catheter was used to empty the bladder of urine and infuse it with Hepes-buffered human tubal fluid medium with gentamicin and 10% albumin (Sanquin Blood Supply). This allowed us to obtain a possible retrograde portion of the ejaculate. For semen analysis this retrograde yield was portioned in four 50-mL conical tubes and centrifuged. After centrifugation the fluid portion of the semen was discarded in the supernatant. The yielded samples in the four conical tubes were combined. This resulting final pellet volume was evaluated and used as the basis for calculating VCM in retrograde specimens. Sperm count and motility were determined by manual methods according to World Health Organization guidelines (9). For sperm density, semen suspension was diluted with 5% $NaHCO_3$ and colored with two drops of methylthionine chloride. Concentration was calculated using a Neubauer counting chamber. The motility was assessed using 400× microscopic magnification in four to six fields of view. The mean motility of these fields of view was documented. Assessment of both concentration and motility was performed in duplicate. A semen sample was evaluated by one laboratory technician. All laboratory technicians were authorized for semen analysis by the Dutch Foundation for Quality Assessment in Medical Laboratories.

The semen was used in IUI and ICSI procedures. Choice of treatment with either IUI or ICSI was based on the VCM, patient preference, and medical history of the spouses. A VCM lower than 2 was an indication for IVF/ICSI. In patients with a higher VCM, IUI was considered. Treatment with IUI was performed as described by Cohlen et al. (12). The ICSI procedure was performed as described by Kastrop et al. (13).

RESULTS

During the study period, 60 EEJs were performed in 11 patients. There were no intra- or postoperative complications. Median age at the time of first treatment with EEJ was 33.0 years (interquartile range [IQR] 29.0–36.0 years). Median age of the spouses was 33.0 (IQR 30.0–35.0) years. Table 1 reflects the semen characteristics of the total yielded sample. The total sample includes the antegrade portion and the yielded retrograde portion. Median volume of the total semen sample yielded with the first EEJ was 2.1 mL (IQR 1.4–3.6 mL), and the median concentration of sperm cells was 50 × 10^6/mL

TABLE 1

Sperm characteristics of the total yielded semen sample and outcome of the 11 patients in the present study.

Patient no.	Volume (mL)[a]	Concentration (×10^6/mL)[a]	Motility (%)[a]	VCM[b]	ART type	No. of treatment cycles	No. of pregnancies
1	3.1	70	1.6	3.5	IUI	1	0
2	2.9	32	12.8	12.0	ICSI	5	0
3	2.1	30	9.0	13.2	ICSI	5	1
4	1.4	91	4.9	2.5	–	–	0
5	2.0	60	8.9	4.2	ICSI	6	2
6	3.6	32	7.9	6.1	ICSI	4	1
7	2.1	50	24.0	38.7	ICSI	2	0
8	0.4	75	47.0	34,4	IUI	17	2
9	1.1	42	5.0	0.9	–	–	0
10	13.7	23	11.2	44.0	IUI	16	2
11	4.5	100	11.8	32.9	ICSI	4	1
Total	2.1 (1.4–3.6)	50 (32–75)	9.0 (5.0–12.8)	12 (3.5–34.4)	–	5 (3–11)	–

Note: Values in parentheses are IQR.
[a] Of the first electroejaculation.
[b] Mean VCM (volume [mL] × concentration [sperm cells/mL] × percentage progressive motile cells/100) of semen from all electroejaculation procedures.

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