The Use of Electroejaculation for the Treatment of Infertility in the Anejaculatory Male

S.W. J. Seager and L.R. Halstead

Studies in Anejaculation

Idiopathic (Neurogenic, Psychogenic, or other)*
Spinal Cord Injury (Traumatic and Non-traumatic)*
Retroperitoneal Lymph Node Dissection (RPLND)*
On day of egg retrieval**
Diabetic**
Multiple Sclerosis (MS)*
Drug Induced**
Post-surgical**
Spina Bifida*

* May require GA  ** Requires short GA

Sexual Function in SCI Males

Causes of Infertility: (Talbot, 1955)

- Ejaculatory dysfunction
- Impaired spermatogenesis
- Ductal blockage
Electroejaculation Unit circa 1970

Cat and Original EE Unit

Cat with First Born Kitten using EE and Frozen Semen
Male Calico Cat

Klinefelter’s Syndrome

Dr. Seager and First Pups whelped from the use of Frozen Semen
Seager EE Equipment
Various Electrode Designs

Professor G. Brindley’s
EE System circa 1980

If Penile Vibration works

use it
until it fails
International EE Data Sheet

Ages of Men who have had EE Procedures Performed

- SCI: Range 16 - 60 years
- Non-SCI: Range 20 - 71 years
- Length of Injury: Range 2 months - 43 years

Stimulation Time

- Average: 4.6 minutes
- Range: 3.5 - 5.7 minutes
Voltage Required for Ejaculation

Current (Amps) required for EE Procedure

Laboratory Analyzed Semen Pre and Post SCI

<table>
<thead>
<tr>
<th>Patient</th>
<th>DOB</th>
<th>DOI</th>
<th>COI</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB</td>
<td>1968</td>
<td>Aug 1991</td>
<td>Fall</td>
<td>T9 Complete</td>
</tr>
<tr>
<td>MA</td>
<td>1967</td>
<td>July 1990</td>
<td>MCA</td>
<td>T9 Complete</td>
</tr>
</tbody>
</table>
Laboratory Analyzed Semen
Pre and Post SCI

<table>
<thead>
<tr>
<th>Date</th>
<th>Vol (mls)</th>
<th>TSC (million)</th>
<th>%Mot.</th>
<th>Prog-Mot.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB-Pre-Injury: Sept.'99</td>
<td>2.0</td>
<td>278</td>
<td>70</td>
<td>3-4</td>
</tr>
<tr>
<td>Post-Injury**: Dec.'99</td>
<td>1.7</td>
<td>21</td>
<td>70</td>
<td>2-3</td>
</tr>
<tr>
<td>MA-Pre-Injury: Mar.'90</td>
<td>2.0</td>
<td>400</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>Post-Injury**: Nov.'90</td>
<td>2.5</td>
<td>993</td>
<td>50</td>
<td>4</td>
</tr>
</tbody>
</table>

Frequent EE Procedures
in one SCI Subject

NY White Male
DOB: 1960 Injury:C8/T1 Complete
None traumatic injury in 1983 when 19 years of age

Frequent EE Procedures
in one subject

11 EE procedures in 44 days
### Electroejaculation Subjects with SCI of > 15 Years

<table>
<thead>
<tr>
<th>Level of Injury</th>
<th>Mean Total Sperm Count (million)</th>
<th>Mean Total Motile Sperm (million)</th>
<th>Motility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical</td>
<td>31</td>
<td>1424</td>
<td>209</td>
</tr>
<tr>
<td>Thoracic</td>
<td>49</td>
<td>859</td>
<td>126</td>
</tr>
<tr>
<td>Lumbar</td>
<td>5</td>
<td>99</td>
<td>7</td>
</tr>
</tbody>
</table>

### Multiple EE Procedures in One SCI Subject

**E. S.**

DOB: 1951

Injury: T5-6 Complete

Motorcycle accident in 1970 when 18 years of age

**NRH**

### Multiple EE Procedures (Ante grade Ejaculates)

<table>
<thead>
<tr>
<th>Procedure Number</th>
<th>Date</th>
<th>Volume</th>
<th>Motility</th>
<th>Progressive Total sperm Count million</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan-86</td>
<td>2</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Nov-86</td>
<td>2.5</td>
<td>35</td>
<td>4</td>
</tr>
<tr>
<td>40</td>
<td>Jan-91</td>
<td>7</td>
<td>50</td>
<td>4</td>
</tr>
<tr>
<td>55</td>
<td>Jul-92</td>
<td>6.8</td>
<td>50</td>
<td>4</td>
</tr>
<tr>
<td>68</td>
<td>Jun-94</td>
<td>8.2</td>
<td>50</td>
<td>3-4</td>
</tr>
<tr>
<td>74</td>
<td>Nov-96</td>
<td>7.4</td>
<td>45</td>
<td>4</td>
</tr>
<tr>
<td>W.H.O.</td>
<td>&gt;2.0</td>
<td>&gt;60</td>
<td>-</td>
<td>&gt;40</td>
</tr>
</tbody>
</table>

Based on a scale of 1 - 4, with 4 being optimal

ES/NRH
Electroejaculation in Subjects (N=582)

- Spinal Cord Injured 466
- Idiopathic 49
- RPLND - post 38
- Diabetic 19
- Multiple Sclerosis 6
- Spina Bifida 2
- Myalitis 2

Fertility Options
Current Cost in the USA

- IUI $700
- IVF $9,000+
- MESA $2,500+
- TESA $2,500+
- Vas Aspiration $2,500+
- ICSI $11,000+

NRH Fertility Program

Number of EE Procedures Performed from 1984 to date = 5,600+
Dr. Seager with a Couple and their Child

Couple with Two Children
First Child by AID,
Second Child by AIH (EE)

Dr Seager with Couple
First NRH - ICSI Pregnancy
Fertility Evaluation Men who have suffered Spinal Paralysis prior to puberty

S. Seager; A. Jamous; D. Short; Rafi Heruti; G. Zeikig; and L. Halstead
National Rehabilitation Hospital
Stoke Mandville U.K.

Materials and Methods

• 15 Males who had suffered spinal paralysis
• 11 years of age and under (volunteers)
• Age at injury averaged 5.6 years
• None had full physiogenic erections
• 4 reported reflexogenic erections
• Paralysis ranged from C-6 through L-1

Materials and Methods (cont)

Semen samples were collected by -
  Electroejaculation (12)
  Penile Vibration (3)
Results

Ejaculates were obtained from all of these subjects; one did not have sperm in his sample.

Fourteen subjects had a total sperm count averaging $4.48 \times 10^6$, range $2 \times 10^6$ to $1.2 \times 10^9$, motility averaging 28%, range 0 to 62%.

The length of time between injury and first EE trial averaged 27 years.

Conclusions

This group of men had good fertility potential considering the fact that they had never ejaculated normally.

Such subjects inquiring about fertility should be encouraged.

Using IUI or ART (IVF/ICSI intracellular cytoplasmic sperm injection) their fertility potential is comparable with those in our study who suffered spinal paralysis post puberty.

Dr. Seager with SCI Patient in Chech Republic
EE Training Team in Bosnia

Bosnian Veterans

EE Magpie Hornbill, Singapore
Ejaculation of the Anejaculatory Male

- Medical Procedure
- Good Patient Acceptance
- Inexpensive
- Non-invasive
- Safe
- Repeatable
- Proven
- 100% Success in obtaining an ejaculate

Ejaculation Success
Last 367 Subjects

- 377 subjects ejaculated, 100% ejaculation
- 360 subjects (96%) had sperm in sample

Information on Pubertal Boys with Cancer

Information was kindly supplied by Jens Sonksen, MD, PhD, DMSci and his colleagues
Department of Urology, Herlev Hospital
University of Copenhagen
Electroejaculation in Pubertal Boys with Cancer

- N= 9
- Year of age: 13 - 15
- Semen Characteristics
  - Volume (antegrade) 0.8 – 4.7 ml
  - Total number (millions) 4 - 111
  - Motility (%) 10 – 44
  - All semen sent to cryopreservation before chemotherapy

Muller, Sonksen et al Med Pediatr

International EE Interest Group
American Urological ASSOC.