Frequency of Intracavernosal Injections Improves Erectile Function Recovery Following Radical Prostatectomy

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Introduction

- Erectile rehabilitation has demonstrated effectiveness\(^1\)

- Intracavernosal injections (ICI) play an important role at many centers
  - Suggested use is generally 2-3 times a week

- Little is known about whether the frequency of ICI is important to erectile function recovery

\(^1\) Mulhall et al., JSM, 2005; Montorsi et al, J Urol, 1997
Study Objective

To determine if frequency of ICI use is associated with erectile function recovery following radical prostatectomy (RP).
Methods: Population

- Men who underwent a RP
- Started erectile rehabilitation ≤ 6m post-RP
- Prospective clinical data available on:
  - Erectile function (EF)
  - ICI frequency data
Methods: Outcome Variable

- EF data available between 12 to 30m post RP
- EF was graded on a percentage patient-reported scale
  - 100% = fully rigid
  - 60% = adequate for penetration
  - 0% = no rigidity
- Patient graded EF response for:
  - Spontaneous erectile rigidity
  - PDE5i
  - ICI
Methods: Predictor Variables

- Age at the time of RP
- Pre-RP erectile function
  - Validated 5-point patient-reported scale
  - 1 (fully rigid) to 5 (no tumescence)
- Nerve sparing score (NSS)
  - Validated 1-4 point scale for each nerve
  - Range 2-8. Score of 2 indicates complete nerve sparing
- ICI frequency within 1 year post-RP
  - Self-reported
  - Injections per week
Methods: Exclusion Criteria

• Poor response to ICI within 1 year post-RP
  - Erectile function rigidity ≤ 40%

• Excellent PDE5i responders
  - Erectile function rigidity ≥ 80%
# Results: Subject Characteristics

<table>
<thead>
<tr>
<th>Sample</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>N</td>
<td>99</td>
</tr>
<tr>
<td>Mean age (years)</td>
<td>59±7</td>
</tr>
<tr>
<td>Mean Pre-RP EF (1 to 5)</td>
<td>1.6±1</td>
</tr>
<tr>
<td>Mean ICI/week</td>
<td>1.6±0.8</td>
</tr>
<tr>
<td>ICI Frequency</td>
<td></td>
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<tr>
<td>&lt; 1/week</td>
<td>8%</td>
</tr>
<tr>
<td>1-2/week</td>
<td>50%</td>
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<tr>
<td>≥ 2/week</td>
<td>42%</td>
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<tr>
<td>Mean EF Follow-up Time Post-RP</td>
<td>22±5m</td>
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<tr>
<td>Mean EF Post-RP EF</td>
<td></td>
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<tr>
<td>Spontaneous</td>
<td>31±24%</td>
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<tr>
<td>PDE5i</td>
<td>50±26%</td>
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EF Response to PDE5i

- Univariate analysis, EF response to PDE5i was related to:
  - Age        r= -0.33   p=0.001
  - Pre-RP EF  r= -0.14   p=0.29
  - NSS        r= -0.13   p=0.28
  - ICI/week   r=  0.39   p=0.001

- Multiple regression, ICI/week remained a significant predictor of EF response to PDE5i:
  - ICI/week   beta = 0.48   p= 0.001

- An increase of 1 injection/week lead to:
  - Increase in 16 percentage points in PDE5i EF response.
Spontaneous EF Response

- Univariate analysis, response to PDE5i was related to:
  - Age \( r = -0.24 \quad p=0.02 \)
  - Pre-RP EF \( r = -0.16 \quad p=0.20 \)
  - NSS \( r = -0.28 \quad p=0.01 \)
  - ICI/week \( r = 0.24 \quad p=0.02 \)

- Multiple regression, ICI/week remained a significant predictor:
  - ICI/week \( \text{beta}=0.31 \quad p=0.01 \)

- An increase of 1 injection/week lead to:
  - Increase in 11 percentage points in spontaneous EF response
Conclusions

- Frequency of ICI use in the first year post surgery is associated with improved EF (22m post surgery)
- Increase in 1 injection per week related to an increase in:
  - 16 percentage points in PDE5i EF response
  - 11 percentage points in spontaneous EF response
- Need to replicate in more controlled study
- Rehabilitation programs should monitor frequency of injection use
- Help men increase the use of ICI
- These data may help motivate patients to inject to maximum times per week