Frequency of Intracavernosal Injections Improves Erectile Function Recovery Following Radical Prostatectomy

Christian J. Nelson PhD*, Hayley Pessin, PhD*, and John P. Mulhall MD[+]

*Department of Psychiatry and Behavioral Sciences Sexual; [+]Reproductive Medicine Program, Urology Service, Department of Surgery; Memorial Sloan Kettering Cancer Center, New York, NY

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 $\leq$ 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

	Sample
N	99
Mean age (years)	59±7
Mean Pre-RP EF (1 to 5)	1.6±1
Mean ICI/week	1.6±0.8
ICI Frequency < 1/week	8%
1-2/week	50%
≥ 2/week	42%
Mean EF Follow-up Time Post-RP	22±5m
Mean EF Post-RP EF Spontaneous	31±24%
PDE5i	50±26%

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   p=0.02
  - Pre-RP EF   r= -0.16   p=0.20
  - NSS   r= -0.28   p=0.01
  - ICI/week   r= 0.24   p=0.02

- Multiple regression, ICI/week remained a significant predictor:
  - ICI/week   beta=0.31   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