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**INTRODUCTION & OBJECTIVES:** To evaluate the role of low-intensity shock wave therapy (LI-SWT) in penile rehabilitation (PR) post nerve sparing radical cysto-prostatectomy (NS-RCP).

**MATERIAL & METHODS:** Eighty seven sexually active men with muscle invasive bladder cancer were enrolled in this prospective study. After bilateral NS-RCP with orthotopic diversion (W-Pouch) by a single expert surgeon between January 2015 and October 2016, patients were randomized into three groups (29 patients in each group). SWL Group who received 12 sessions of penile LI-SWT (2/week for 3 weeks, then 3 weeks free of treatment, then 2/week for another 3 weeks) by using Dornier Aries device (Dornier MedTech System, GmbH, Wessling, Germany). Phosphodiesterase type-5 inhibitors (PDE5i) Group who received oral PDE5i of 50 mg daily for 6 months. Control Group was followed up only without any therapy. Patients were assessed before surgery and were followed up at 1-month (FU1), 3-month (FU2), 6-month (FU3), and 9-month (FU4) postoperatively. Effectiveness was assessed by International index of erectile function-15 questionnaire (IIEF) and erection hardness score (EHS). Potency recovery was defined as patients who achieved erection hard enough for vaginal penetration (IIEF-EF domain  $\geq 26$  and EHS  $\geq 3$ ).

**RESULTS:** Mean age was  $54.1 \pm 5.9$  years and all 87 patients completed the 9 months follow-up program with mean follow-up period  $15.9 \pm 4.2$  months. There were no statistically significant differences regarding preoperative patients demographic data and tumor criteria.

At FU1; All patients have insufficient erection for partner vaginal penetration. EHS  $< 2$ ; with decrease of preoperative IIEF-EF mean score from  $28 \pm 0.7$  to  $6.6 \pm 0.8$ .

In SWL group; At FU2; 17/29 patients regained potency which is maintained in 15 patients only at FU3&4. However; 6 of remaining 12 patients regained & maintained potency at FU3&4. Statistical evaluation showed significant increase in IIEF-EF score from 6.6 at FU1 to 23 at FU2, 24 at FU3 and 24.5 at FU4 ( $P < 0.001$ ).

In PDE5i group; At FU2; 16/29 patients regained & maintained potency at FU3&4. However; 7 of remaining 13 patients regained & maintained potency at FU3&4. Statistical evaluation showed significant increase in IIEF-EF score from 6.6 at FU1 to 22.8 at FU2, 24.2 at FU3 and 24.7 at FU4 ( $P < 0.001$ ).

In Control group; At FU2; 12/29 patients regained & maintained potency at FU3&4. However; 6 of remaining 17 patients regained & maintained potency at FU3&4.

Statistical evaluation showed no significant difference in potency recovery rates at FU2 & FU3,4 among the groups ( $P = 0.14$  &  $P = 0.24$  respectively).

Potency recovery rates at FU2 were 58.6% vs 55.2% vs 41.4% in SWL, PDE5i and Control group, respectively. While potency recovery rates at FU3,4 were 72.4%

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vs 79.3% vs 62.1% in SWL, PDE5i and Control group, respectively.

**CONCLUSIONS:** LI-SWT is safe and as effective as oral PDE5i in penile rehabilitation post NS-RCP. A large-scale study is required to determine the value of this treatment modality in erectile dysfunction post nerve sparing radical cysto-prostatectomy.