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Treatment of erectile dysfunction post radical prostatectomy by nerve grafts and end-to-side somatic-autonomic neurorraphies: New technique

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Introduction & Objective: The radical prostatectomy (RP) for the prostate cancer treatment although effective in the treatment of this neoplasia can lead to severe erectile dysfunction. We developed a new technique of penile reinnervation through two sural nerve graft bridges on each side.

Methods: IIEF questionnaire and pharmaco-penile Doppler ultrassonography (PPDU) with intra cavernosum of papaverine were performed in the pre-operative and with 6, 12, 18 and 24 months after the reinnervation surgery; ten patients with 61±5 years old (55-69). Six patients did not have radiotherapy and four had. The interval between the radical prostatectomy (RP) and the reinnervation of the penile was 48±34 (26 to 137) months. No patient was able to maintain natural penetration after RP even with the use of phosphodiesterase-5 inhibitor or refuse the carvernosum injections. The surgery consisted in four sural nerve grafts in bridges. The distal extremity of all nerve grafts were sutured to the lateral face of bilateral femoral nerves in the inguinal area (donor nerve fibers), below the inguinal ligament after performing an epi-perineural femoral nerve window. The other extremities of one nerve graft of each side were sutured to the side of the dorsal penile nerve (receptors). The extremities of the other two grafts were buried into the proximal portion of both cavernosum corpus (receptors) performing a neurotization.

Results: All the six patients not submitted to radiotherapy presented sexual intercourse between 3 and 16 months (average 9 ± 4.47). The four patients submitted to radiotherapy did not presented sexual intercourse until 24 months. IIEF pre-op was 4.5 ± 3.9 and increased to 17.5 ± 6.5 at 12 months (p<0.001) and 26.7 ± 1.2 at 24 months. PPDU showed peak systolic velocity (PSV) <25cm/s in 30% at pre-op. In post-op all the patients presented PSV>25 cm/s. Regarding the Resistance Index after 12 months of the surgery is noticed a statically significant increase compared to the pre-operative period in both left and right cavernous arteries. However, at 18 months post-operative this difference was maintained only in the right cavernous artery.

Conclusions: This new experimental technique of penile reinnervation using end-to-side neurorraphy is an alternative to the invasive traditional methods for the treatment of the erectile dysfunction post RP. The average period for satisfactory results was of 9 months. The radiotherapy was a negative factor to the penile reinnervation.

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