Salvage lymph node dissection at radiotracer-avid sites in recurrent prostate cancer: An early assessment of efficacy in a hormone naïve population

Luke AR Shumaker, Clinton D Bahler, Thomas A Gardner, James W Fletcher, Michael D Koch

Indiana University School of Medicine, Department of Urology

ABSTRACT

INTRODUCTION & OBJECTIVE: Prostate-specific radiotracers have enabled PET studies to accurately identify lymph nodes harboring metastasis [1]. Standard treatment algorithms generally suggest systemic therapy in the context of nodal metastasis [2]. Several reports have been made concerning the outcome of PET-directed pelvic lymph node dissections with feasibility and overall procedure safety deemed to be excellent [3]. However, overall benefit in mitigating disease progression has remained in question. We sought to add our PET-directed, salvage lymph node dissection outcomes to the small body of existing evidence. Additionally, our goal was to increase post-dissection PSA trend resolution in order to assess how PSA trends in hormone naïve lymph node dissection patients compare to patients receiving systemic therapy.

METHODS: A population of 21 receiving a PET/CT was queried for post-scan targeted LN dissections. Cases with false positive scans by histology or where PSA trend-confounding hormonal therapy was applied were excluded. 21 patient courses were identified where targeted LN dissection was performed, prostate adenocarcinoma was confirmed by histology, and sufficient follow-up data was present. PSA trends were characterized and durability assessed by three primary metrics: initial change as a percent of pre-dissection PSA, time to recurrence of >100% pre-dissection PSA, 12-month PSA recurrence rates with recurrence defined as >0.2 ng/ml. RESULTS: 17/21 achieved immediate downward-trending PSA values confirmed by two results. 4/21 demonstrated a continued up trend. 6/21 achieved immediately undetectable PSA (<0.24 ng/ml) confirmed by two results. For the 17 with a down trend, the average reduction, as a percent of pre-dissection PSA, was 98% with a range of 61 – 100%. In 10 patients with a minimum 12 month follow up, 8/16 patients remained below their PSA value at dissection. 4/21 remained below 0.2 ng/ml at 12 months. 5/16 remained below 0.2 ng/ml at 18 months with 2 remaining below 0.2 ng/ml at 32 and 45 months. Univariable and multivariable linear regression were used to assess for correlations in outcomes: PSA % change, months to >0.2 ng/ml, and months to >100% recurrence, and PSA response (<0.2 ng/ml). These outcomes were considered against independent variables PSA at dissection, number of avid nodes on PET, unilateral vs bilateral node dissection, and initial Gleason grade. No significant correlations were demonstrated. It is suspected that this is due to heterogeneity of the dissection population; limited follow up data, small population size, and non-uniform methods implemented in dissection procedures. CONCLUSIONS: Targeted LN dissection offers some potential for durable, recurrence free survival. However, >100% pre-dissection PSA recurrence is common. Achieving and maintaining a stable PSA long-term is possible but unlikely.

RESULTS

Post-dissection PSA trends

CONCLUSIONS

– Some patients underwent targeted robot-assisted dissections within the year, thus 12 month follow up data is not available.

– Small cohort size limits generalizability of outcome data.

– Surgeon preference dictated type of lymph node dissection (unilateral, bilateral, extended).

LIMITATIONS

– 210 PET scans were completed in the setting of biochemical recurrence after primary therapy. 21 patients with PET scans demonstrating disease isolated to lymph nodes and a strong preference to avoid hormonal therapy underwent robot-assisted lymph node dissections.

– All 21 dissection cases retrieved malignancy positive nodes confirmed by histology.

– PSA at the time of robot assisted lymph node dissection and type of dissection performed were recorded for each patient.

– Post-dissection PSA trends were followed along with any surgical complications.

– STATA was used for regression calculations and the generation of survival curves.

REFERENCES

