Impact of CryoProbe Density (CPD) on Total and Focal Cryotherapy for Prostate Cancer

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INTRODUCTION

- Cryotherapy is a minimally invasive procedure that has been recognized as an alternative option for prostate cancer treatment.
- Cryotherapy can target either the entire prostate (total cryotherapy) or parts of the prostate only (focal therapy).
- Due to the widespread use of fusion imaging technology, the role of focal therapy is expanding for prostate cancer patients.
- Cryotherapy is the controlled freezing of the prostate gland, wherein cryo-probes are introduced into the prostate using ultrasound guidance.
- The prostate is frozen to a target temperature of -40 °C or colder. An ice ball is formed and prostate tissue is ablated from anterior to posterior.

OBJECTIVE

- We aim to evaluate the relationship between CryoProbe density (CPD) and higher rate reductions in PSA following total and focal cryotherapy for prostate cancer.

METHODS

- Utilizing data from NYU Winthrop Hospital’s Prostate Cancer Database, a Spearman correlation coefficient was used to assess the relationship between probe density and other continuous measures separately for focal and total cryotherapy subjects.
- CPD was measured based on number of probes used during cryotherapy and prostate volume.
- Other continuous measures include PSA values before and after cryotherapy, date difference between date of cryotherapy and date of PSA nadir, and percentage of PSA reduction at nadir following cryotherapy.
- A result was considered statistically significant at the p<0.05 level of significance. All analyses were performed using SAS version 9.4 (SAS Institute, Cary, NC).

RESULTS

Focal cryotherapy (N= 91)

- An 80% median reduction of PSA value to nadir was noted.
- There was a negative correlation between CPD and PSA value after cryotherapy (rho = -0.296, p=0.005).
- An increased percentage of PSA reduction at nadir was correlated with higher probe density (rho = 0.232, p=0.035).

Total cryotherapy (N= 38)

- An 96% median reduction of PSA value to nadir was noted.
- There was a negative correlation between CPD and PSA value after cryotherapy (rho = -0.328, p=0.045).
- There was no significant correlation between probe density and percentage of PSA reduction at nadir after cryotherapy (rho = 0.246, p=0.190).

CONCLUSIONS

- Based upon our data, CPD may have a significant effect on PSA reduction after cryotherapy. While there were significantly high median rates of PSA reduction to nadir after both total (96%) and focal (80%) cryotherapies, higher probe density was positively correlated with greater rate reduction of PSA after cryotherapy for focal cryotherapy subjects only.

REFERENCES

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