

A REVIEW OF LU-177 PSMA THERAPY FOR PROSTATE CANCER

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BACKGROUND: Lu-177 PSMA is a recently developed radionuclide therapy that targets the prostate specific membrane antigen and is used in patients with metastatic castration-resistant prostate cancer.

PURPOSE: The goal of this literature review is to assess the efficacy of Lu-177 PSMA targeted radiotherapy.

METHODS: Published data was obtained from PubMed, Ovid, NCBI, and NIH ClinicalTrials using keywords or phrases, such as: Lu-177 PSMA, Lu-177 PSMA trial, metastatic prostate cancer therapy, treatments for castration resistant prostate cancer, therapy for prostate cancer, effects of Lu-177 PSMA, safety and/or effect of Lu-177 radiotherapy, long term outcomes of Lu-177 PSMA, and comparisons of Lu-177 PSMA to typical therapy treatments. Required criteria for inclusion: articles and trials after 2015, on patients with metastatic castration-resistant prostate cancer, those with patients who had fractionation or single dose method of Lu-177 PSMA therapy, trials that evaluated for safety and effect of Lu-177 radiotherapy, long term outcomes of Lu-177 PSMA, and comparisons of Lu-177 PSMA to typical therapy treatments.

RESULTS: Twenty-two articles were found and twelve of these possessed the criteria required for review. Results show a longer overall survival rate with high response rates with Lu-177 PSMA therapy. Patients undergoing Lu-177 PSMA therapy show a significant decline in PSA levels and improvement in pain palliation. Patients with fractionated doses allowed a higher overall treatment dose which yielded a higher response rate also resulting in increased toxicity responses.

CONCLUSIONS: Patients receiving Lu-177 PSMA therapy demonstrated a decrease in PSA levels, aid in pain management, and a higher overall response in comparison to traditional routes of treatment. Patients treated with fractionating Lu-177 PSMA dose showed an increased response rate than patients with a single treatment, but had a more severe toxicity response.

RELEVANCE TO ALLIED HEALTH: Lu-177 PSMA radionuclide therapy that targets prostate specific membrane antigen on tumor sites provides less damage to neighboring organs and tissues compared to systemic therapy. This could change the course of the treatment plan for patients who would normally require physical therapy or occupational therapy after traditional treatment.