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# Neurologic Symptoms After $^{177}$Lu-Prostate-Specific-Membrane Antigen-617 Therapy: A Single-Center Experience

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Treatment with $^{177}$Lu-prostate-specific membrane antigen (PSMA)–617 ($^{177}$Lu-vipivotide tetraxetan [Pluvicto]) prolongs both progression-free and overall survival in advanced PSMA-positive metastatic castration-resistant prostate cancer. Data examining specifically neurologic symptoms after $^{177}$Lu-PSMA-617 treatment are scarce. In this study, we aimed to review the neurologic findings in a large cohort of metastatic castration-resistant prostate cancer patients undergoing $^{177}$Lu-PSMA-617 therapy. **Methods:** The clinical records and imaging data of patients who received their initial dose of $^{177}$Lu-PSMA-617 between March 2022 and November 2022 were retrospectively reviewed. All patients presenting for medical evaluation, regardless of specific specialty appointments, with new or worsening neurologic symptoms were included in the study. **Results:** A total of 185 patients underwent $^{177}$Lu-PSMA-617 therapy. The median age was 70 y (range, 58–90 y). The mean follow-up time was 12.04 ± 2.87 mo. Fifty-five new or worsening neurologic symptoms were observed in 50 patients (27%, 50/185). Of these, 27 (11.9%, 27/185) reported altered taste. Eleven patients (6%, 11/185) experienced dizziness with no other clear etiology; 2 of these patients were admitted to the emergency department (ED). Paresthesia symptoms were reported in 6 patients (3.2%, 6/185). Five patients (2.7%, 5/185) reported headaches, 3 of these patients were admitted to the ED because of the severity of the symptoms. Two patients (1.08%, 2/185) presented with extremity weakness. Two patients (1.08%, 2/185) had an ischemic stroke and were admitted to the ED. One patient (0.05%, 1/185) exhibited gait disturbances. In total, 7 patients (3.78%, 7/185) were admitted to the ED because of neurologic symptoms. None of the patients discontinued or failed to complete the $^{177}$Lu-PSMA-617 therapy because of neurologic symptoms. **Conclusion:** After $^{177}$Lu-PSMA-617 treatment, the most common neurologic symptoms were dysgeusia and dizziness. In this study, our follow-up period and population size might not have been sufficient to detect delayed or uncommon neurologic symptoms. In patients without neurologic symptoms or central nervous system metastases before treatment, we found the development of severe neurologic problems to be rare and unlikely to require discontinuation of treatment.

**Key Words:** prostate cancer; theranostics; radionuclide therapy; $^{177}$Lu-PSMA-617; neurologic findings

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Prostate cancer is widely recognized as a global health concern, with its incidence rates correlating with socioeconomic development around the world (*1*). According to Global Cancer Observatory 2020, the cumulative risk of prostate cancer for American men reaches approximately 37%, significantly higher than the global average risk of 22.6% (*2*). Moreover, the incidence and prevalence of prostate cancer are expected to rise alongside the aging population, representing an increasing psychologic and economic burden for the United States.

Notably, most patients are diagnosed with prostate cancer at the early stages, at which the 5-y survival rates are nearly 100% (*3*). However, the medical community faces a significant challenge with the dramatic rise in advanced-stage diagnoses, for which the survival rate drops to 32% (*3*). Also, despite initially favorable responses to treatments and excellent survival rates, most patients eventually develop resistance to standard therapies (*4*,*5*). This leads to the emergence of metastatic castration-resistant prostate cancer, defined as disease that progresses despite maintenance of serum testosterone levels within the castration range (*6*).

Given the increasing burden of prostate cancer, there has been growing interest in exploring novel therapeutic approaches, particularly in the advanced stages of the disease. Among these emerging treatments, $^{177}$Lu-prostate-specific membrane antigen (PSMA)–617 therapy has garnered significant attention because of its favorable results in managing metastatic castration-resistant prostate cancer (*7*,*8*). Early data from clinical trials indicated the efficacy and safety of $^{177}$Lu-PSMA-617 in patients with metastatic castration-resistant prostate cancer (*7*–*9*). However, as with any novel treatment, understanding the full spectrum of its long-term impact in real-world settings is crucial for optimizing patient care. Also, since the treatment is likely to be used in patients with a longer life expectancy, potential toxicities that might affect the quality of life become increasingly critical.

In the current literature, data examining specifically neurologic symptoms after $^{177}$Lu-PSMA-617 treatment are scarce. This study aimed to review the neurologic findings of a large cohort of metastatic castration-resistant prostate cancer patients undergoing $^{177}$Lu-PSMA-617 therapy.

## MATERIALS AND METHODS

This was a single-center, retrospective study. The Mayo Clinic Institutional Review Board approved our study, and the requirement to obtain informed consent was waived because of the retrospective nature of the study. The clinical records and imaging data of 185 patients who

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received their initial dose of $^{177}$Lu-PSMA-617 at the Mayo Clinic Rochester between March 2022 and November 2022 were reviewed. Patients were followed up until January 2024.

All patients with new or worsening neurologic symptoms were included in the study. Patients were excluded if they had motor dysfunction attributable to musculoskeletal diseases, a prior diagnosis of a headache syndrome or dizziness, hereditary or chemotherapy-induced neuropathy, a prior diagnosis of seizure disorders, generalized weakness better explained by nonneurologic conditions, known central nervous system metastasis, vision changes attributable to a prior diagnosis of ophthalmologic disorders or metastatic lesions, or known altered taste starting before the $^{177}$Lu-PSMA-617 therapy. Patients without longitudinal follow-up were also excluded (Fig. 1).

All patients' encounters, communications, appointments, and admissions were reviewed using the Epic electronic health record system (Epic Systems Corp.). To mitigate potential selection bias, the scope of chart review was not restricted to specific specialty appointments. Additionally, records before the initiation of $^{177}$Lu-PSMA-617 therapy were reviewed to exclude patients with preexisting and stable neurologic complaints.

The characteristics and severity of neurologic complaints, and the reasons for $^{177}$Lu-PSMA-617 treatment cessation, were recorded. Demographic variables included date of birth, baseline Gleason score, baseline Eastern Cooperative Oncology Group score for performance status, and specific comorbidities (including diabetes mellitus and hypertension). We also collected the initial date of therapy, the total number of therapy cycles that patients received, sites of metastasis known at the time of therapy, the number of bone metastases if available, and prior systemic therapies received.

We investigated a variety of neurologic complaints, including dizziness, headaches, paresthesia, seizures, gait instability (which includes symptoms such as loss of balance or a tendency to easily fall), and weakness in a single or multiple extremities. Additionally, we searched for patients with cerebrovascular accidents (which incorporate both ischemic and hemorrhagic strokes and transient ischemic attacks), episodes of syncope or presyncope, dysgeusia, or vision changes (encompassing reduced vision, sudden vision loss, and double vision [diplopia]). Neurologic symptoms were retrospectively graded using the Common Terminology Criteria for Adverse Events (version 5.0), similarly to the categorization used in prior clinical trials (*7*,*8*), and the highest grade for the complaints of each patient during the follow-up was recorded. Descriptive statistics were calculated with SPSS (version 23.0 for Microsoft Windows).

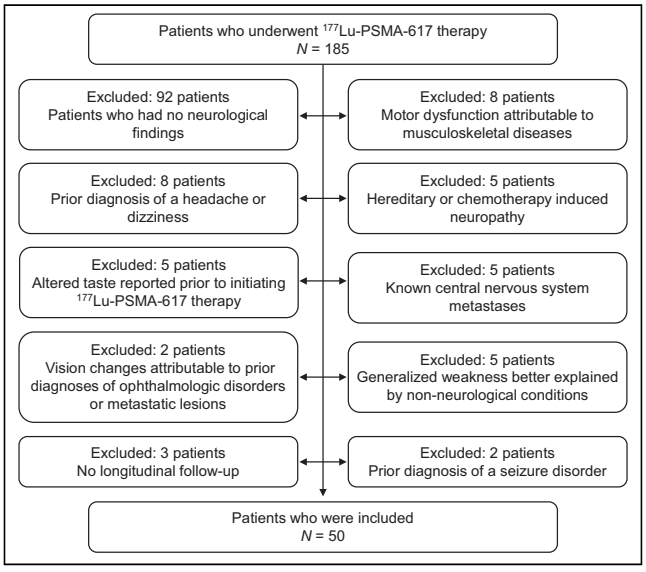


**FIGURE 1.** Flowchart of patient selection.

### Radiopharmaceutical Administration of $^{177}$Lu-PSMA-617 and Follow-up

All patients underwent either a $^{68}$Ga-PSMA-11 PET/CT or an $^{18}$F-DFCPyL PET/CT scan to identify and evaluate PSMA-avid lesions. The patients' medical histories, recent imaging data, clinical conditions, and laboratory tests, obtained 1 d before the planned treatment date, were evaluated.

Patients were initially encouraged to maintain oral hydration (1.5–2 L/d) on the day before, the day of, and for several days after the therapy, unless there were fluid restrictions. On the day of therapy, the first step involved recording the patients' vitals and weight. Next, the patency of the intravenous line was ensured by flushing it with 10 mL of saline before administering the radiotracer. This was followed by the initiation of a saline infusion at a rate of 100 mL/h, totaling approximately 250 mL of saline administered during the therapy. Subsequently, $^{177}$Lu-PSMA-617 was administered using an intravenous pump over 10 min. In the final step, to ensure thorough administration and enhance patient safety, a posttherapy saline flush was performed, using a volume at least twice that required for the $^{177}$Lu-PSMA-617 application.

Follow-up appointments were scheduled before each therapy cycle to assess patients' status and potential side effects. Additionally, patients were encouraged to communicate with the clinical care team via the patient portal or direct messaging for any new or worsening complaints occurring between treatment cycles or after completion of $^{177}$Lu-PSMA-617 treatment.

## RESULTS

A total of 185 patients underwent $^{177}$Lu-PSMA-617 therapy. The median age was 70 y (range, 58–90 y). The mean follow-up time was 12.04 ± 2.87 mo. The detailed patient characteristics are presented in Table 1.

Fifty-five new or worsening neurologic symptoms were observed in 50 patients (27%, 50/185). Table 2 provides a detailed overview of the neurologic symptoms noted after $^{177}$Lu-PSMA-617 therapy, along with the median onset times of these symptoms. Table 3 summarizes the severity of the observed neurologic symptoms based on the Common Terminology Criteria for Adverse Events.

Twenty-seven patients (14.6%, 27/185) reported experiencing dysgeusia, which includes a reduced sense of taste or alterations in taste perception, such as a perception of bitterness, metallic taste, or spiciness compared with their taste perception before undergoing $^{177}$Lu PSMA-617 therapy. The median time for these symptoms to manifest after the first cycle of $^{177}$Lu PSMA-617 therapy was 4.2 mo (range, 0.8–8.6 mo). Among these 27 patients, 17 (63%, 17/27) reported the onset of dysgeusia within the first 3 cycles of treatment. All these patients reported that altered taste led to changes in their diet, characterized by unpleasant flavors and reduced appetite. Their symptoms were predominantly permanent, and all these patients also reported experiencing dry mouth in addition to dysgeusia.

Among all the neurologic findings, dizziness was the second most experienced symptom in our cohort, occurring only during or immediately after the treatment, and was temporary and not disabling. Of the 37 patients with this symptom, 11 (6%, 11/185) experienced mild dizziness without any other clear underlying cause; 2 of these patients were admitted to the emergency department (ED) because of moderate and severe lightheadedness. These patients underwent comprehensive evaluations, were closely monitored in the ED, and were discharged once their

**TABLE 1**
Characteristics of Patients Presenting with Neurologic Complaints

| Characteristic | Data |
|---|---|
| Age at start of treatment (y) | |
| Overall | Median, 70 (range, 58–90) |
| ≥65–84 | 92% (46) |
| ≥85 | 10% (5) |
| Gleason score at diagnosis | |
| 6 | 4% (2) |
| 7 | 38% (19) |
| 8 | 12% (6) |
| 9 | 36% (18) |
| 10 | 8% (4) |
| Unknown | 2% (1) |
| Mean follow-up time ± SD (mo) | 12.04 ± 2.87 |
| Time from diagnosis to first cycle of $^{177}$Lu-PSMA-617 (mo) | Median, 68.37 (range, 15.9–354.2) |
| ECOG | |
| 0 or 1 | 96% (48) |
| ≥2 | 4% (2) |
| History of hypertension | 30% (15) |
| History of diabetes mellitus | 10% (5) |
| Sites of metastases | |
| Bone | 82% (41) |
| Lymph node | 68% (34) |
| Liver | 2% (2) |
| Lung | 6% (3) |
| Number of bone metastases | |
| 1–4 | 2% (1) |
| 5–10 | 8% (4) |
| >10 | 72% (36) |
| Previous systemic therapies | |
| Androgen deprivation therapy | 100% (50) |
| Taxane chemotherapy (docetaxel, cabazitaxel) | 100% (50) |
| Androgen biosynthesis inhibitors (abiraterone) | 80% (40) |
| Androgen receptor inhibitors (enzalutamide, bicalutamide, apalutamide, darolutamide) | 100% (50) |
| Carboplatin | 38% (19) |
| Immunotherapy (sipuleucel-T) | 8% (4) |
| $^{223}$Ra | 8% (4) |
| Total cycles of $^{177}$Lu-PSMA-617 | |
| 2 | 4% (2) |
| 3 | 14% (7) |
| 4 | 22% (11) |
| 5 | 22% (11) |
| 6 | 38% (19) |

ECOG = Eastern Cooperative Oncology Group.
Data are percentage followed by number in parentheses (total $n = 50$), unless otherwise specified.

**TABLE 2**
Investigated Neurologic Symptoms

| Neurologic finding | Percentage of patients (total $n$ = 185) | Onset time (mo)* |
|---|---|---|
| Dysgeusia† | 14.6% (27) | 4.2 (0.8–8.6) |
| Dizziness | 6% (11) | 0‡ |
| Paresthesia | 3.2% (6) | 3.5 (0.5–10) |
| Headache | 2.7% (5) | 0‡ |
| Weakness in extremities | 1.1% (2) | 5.25 (1.5–9) |
| Cerebral ischemic event | 1.1% (2) | 11 (8.6–13.4) |
| Gait instability§ | 0.5% (1) | 4.0 |
| Vision disturbance‖ | 0.5% (1) | 5.6 |
| Seizure | 0 | — |
| Syncope/presyncope | 0 | — |

*Median and range for onset of neurologic symptoms after first day of initial cycle of $^{177}$Lu-PSMA-617 therapy.
†Includes altered hypogeusia and altered taste such as foul, salty, rancid, or metallic taste sensation.
‡Reported during or immediately after $^{177}$Lu-PSMA-617 therapy.
§Includes loss of balance or tendency to fall easily.
‖Includes reduced vision, decreased visual field, sudden vision loss, and double vision (diplopia).

symptoms had completely resolved. The rest of the patients fully recovered through conservative measures without requiring further assessment.

Paresthesia symptoms were reported in 6 patients (3.2%, 6/185). These symptoms included tingling sensations or numbness, occurring between the therapy cycles or after $^{177}$Lu-PSMA-617 therapy, with a median onset of 3.5 mo (range, 0.5–10 mo) after their last (sixth) cycle of treatment. Among these patients, 1 patient exhibited left perioral paresthesia and had a medical history of stable atrial fibrillation, systolic heart failure, stable chronic kidney disease, and recent thrombocytopenia. This symptom appeared 7.5 mo after $^{177}$Lu-PSMA-617 therapy while the patient was receiving only leuprorelin injections, after the discontinuation of apixaban treatment because of progressive thrombocytopenia. Extensive evaluations were conducted, including CT angiography for large-vessel occlusion, brain MRI for infarction or other potential findings, echocardiography, abdominal ultrasound, MRI, and chest radiography. The patient was also assessed for metabolic factors or nutritional deficiencies; however, no underlying cause was identified. The patient's condition improved within 5 d of initial admission with the administration of dexamethasone and nutritional supplements, along with supportive care. The remaining 5 patients' symptoms resolved with supportive care or the use of medications such as gabapentin or duloxetine.

Five patients (2.7%, 5/185) experienced headaches during or immediately after the treatment. Three of these patients were admitted to the ED because of the severity of the symptoms. The headaches, which presented without other symptoms, were primarily described as moderate, which slightly affects the patients' functionality. These patients were managed with symptomatic treatments and were discharged when their symptoms had fully resolved, without requiring any further clinical management. The remainder exhibited

**TABLE 3**
Neurologic Symptoms Observed and Graded According to Common Terminology Criteria for Adverse Events

| Neurologic finding | All grades | Grade 1 | Grade 2 | Grade 3 | Grade 4 |
|---|---|---|---|---|---|
| Dysgeusia | 14.6% (27) | 0 | 14.6% (27) | — | — |
| Dizziness | 6% (11) | 4.9 (9) | 0.5% (1) | 0.5% (1) | — |
| Paresthesia | 3.2% (6) | 2.7% (5) | 0.5% (1) | 0 | — |
| Headache | 2.7% (5) | 1.1% (2) | 1.62% (3) | 0 | — |
| Weakness in extremities | 1.1% (2) | 1.1% (2) | 0 | 0 | — |
| Cerebral ischemic event | 1.1% (2) | 0 | 1.1% (2) | 0 | 0 |
| Gait instability | 0.5% (1) | 0 | 0.5% (1) | 0 | — |
| Vision disturbance | 0.5% (1) | 0.5% (1) | 0 | 0 | 0 |

Data are percentage followed by number (total $n$ = 185).

mild symptoms that were managed conservatively. None of the patients reported any long-term headaches or sequelae.

Two patients (1.1%, 2/185) presented with nondisabling, mild weakness in their extremities. One of these patients reported mild weakness in his left arm just after the first cycle of treatment; this patient had vertebral metastases at the C5 and C6 levels. His symptoms were attributed to potential radiation-induced inflammation of his vertebral metastases and resolved after steroid treatment. The other patient described mild weakness in all extremities after the fifth cycle of treatment. The patient experienced significant discomfort, which mildly impacted his daily activities. He was managed with symptomatic care, showing a positive response to treatment.

Two patients (1.1%, 2/185) presented with cerebral ischemic events and were admitted to the ED. An 87-y-old man with chronic hypertension and atrial fibrillation had a transient ischemic attack, which presented with dysarthria, 4 mo after the last cycle of treatment. An 80-y-old man with known treatment-resistant hypertension and cerebral amyloid angiopathy experienced a lacunar stroke 9 d after the first cycle of $^{177}$Lu-PSMA-617 therapy. This event was considered related to the patient's known hypertensive and amyloid angiopathies, and the patient received 6 cycles of $^{177}$Lu-PSMA-617 without experiencing further neurologic symptoms.

One patient (0.5%, 1/185) exhibited gait disturbances, which started 4 mo after the initial dose of $^{177}$Lu-PSMA-617. The patient reported that his symptoms restricted his ability to walk long distances without an assistive device and limited his ability to maintain balance. The patient received regular physical therapy sessions and showed a positive response to treatment.

One patient (0.5%, 1/185), an 87-y-old former smoker with long-standing diabetes and hypertension, experienced a vision disturbance 5.6 mo after initiating $^{177}$Lu-PSMA-617 therapy. The patient had been admitted to the hospital after a recent fall and examined by an ophthalmologist, who identified a left flame-type retinal hemorrhage. The patient had a hemoglobin level of 11 g/dL, and platelets were $122 \times 10^9$/L. The patient's symptoms were monitored and followed up by the ophthalmology team without the need for any special treatment.

In total, 7 patients were admitted to the ED because of neurologic symptoms. None of the patients discontinued or failed to complete the $^{177}$Lu-PSMA-617 therapy because of neurologic symptoms.

## DISCUSSION

Our study exploring neurologic symptoms after $^{177}$Lu-PSMA-617 therapy identified several key findings. First, severe neurologic symptoms were rare, with no clear evidence linking them directly to the $^{177}$Lu-PSMA-617 treatment. Second, taste alteration, including dysgeusia and hypogeusia, was the most prevalent neurologic symptom. Third, dizziness and headaches were also commonly reported, yet these were predominantly mild and managed with conservative interventions. Importantly, neurologic symptoms did not necessitate cessation of therapy in our study cohort. Overall, $^{177}$Lu-PSMA-617 treatment was generally well tolerated, with most neurologic findings being mild, self-limiting, or manageable through conservative methods.

Dysgeusia is characterized by a distorted sense of taste, which may not be life-threatening but can significantly impact well-being and quality of life. In our cohort, we found 27 patients (14.6%, 27/185) experiencing taste distortions, the majority after the first 3 cycles of the treatment (63%, 17/27). Our findings align with those of the TheraP and RESIST-PC trials, indicating that up to 17% of patients experience taste distortions after $^{177}$Lu-PSMA-617 (*7*,*9*). Although the pathophysiology behind taste alteration is not clear, fibrotic changes in nontargeted healthy tissue, direct radiation toxicity to taste buds, or posttherapy salivary gland dysfunction are potential explanations (*10*,*11*). Considering that the salivary glands, in particular the parotid gland, show high uptake of $^{177}$Lu-PSMA-617 (*12*), an accumulation of ionizing radiation in the salivary glands might be a cause for taste alteration due to radiotoxicity surrounding neural structures or taste receptors, which are especially susceptible to radiation because of their high cell turnover rates. Additionally, $^{177}$Lu-PSMA-617 therapy is typically administered to patients who have undergone other treatment options, which are also often associated with long-term taste alterations, including docetaxel, carboplatin, enzalutamide, and olaparib (*13*–*16*). For instance, in the TheraP trial, dysgeusia was reported by 12% of patients treated with $^{177}$Lu-PSMA-617, significantly lower than the 27% observed in the control group treated with cabazitaxel (*7*). Additionally, beyond the adverse effects associated with anticancer therapies, advanced stages of cancer may independently impact and alter taste perception through the cancer's direct pathophysiologic effects or indirectly via mechanisms including paraneoplastic syndromes (*17*,*18*). Nevertheless, considering that long-term cancer survivors often experience weight loss and weakness, focusing more on altered or loss of taste is worthwhile to enhance an individual's overall well-being. In our study, taste alteration did not significantly improve during the short-term follow-up. However, further research might be needed to examine the course of taste alteration in these patients over the long term.

The other common neurologic symptoms observed after $^{177}$Lu-PSMA-617 therapy were dizziness and headaches, consistent with prior literature (*8*,*9*). In line with our findings, the rates of headache and dizziness were 7% and 8.3%, respectively, in the VISION trial (*8*). Similarly, in the RESIST-PC trial, headaches were reported at a rate of 8.7% (*9*). In our study, dizziness and headaches occurred exclusively during or immediately after the treatment and were transient and nondisabling. Additionally, 2 patients (1.1%, 2/185) reported nondisabling, mild weakness in their extremities, which resolved after steroid treatment or conservative care. Additionally, 6 patients (3.2%, 6/185) experienced mild paresthesia, including tingling sensations or numbness. Their paresthesia also resolved with supportive care or medications such as gabapentin or duloxetine.

Three patients with multiple risk factors (1.6%, 3/185) exhibited severe neurologic symptoms, which were not clearly associated with $^{177}$Lu-PSMA-617 treatment. One patient, with known cerebral amyloid angiopathy and long-standing treatment-resistant hypertension, experienced a lacunar stroke 9 d after the first cycle of $^{177}$Lu-PSMA-617 treatment. This incident was considered to be associated with the patient's known hypertensive and amyloid angiopathies. Subsequently, the patient completed 6 cycles of $^{177}$Lu-PSMA-617 treatment without any additional neurologic symptoms. Additionally, an 87-y-old man with chronic hypertension and atrial fibrillation experienced a transient ischemic attack 4 mo after the last treatment cycle. Another patient, with long-standing diabetes and hypertension, presented with vision disturbances, and an ophthalmologic examination revealed a flame-type retinal hemorrhage, which was considered to be associated with microangiopathic retinopathy. In line with the VISION and TheraP trials, our findings indicate that severe neurologic findings after

$^{177}$Lu-PSMA-617 therapy are rare and do not necessitate discontinuation of treatment (*7*,*8*). Additionally, it is important to highlight that active cancer itself is recognized as a well-established risk factor for ischemic stroke and other arterial thromboembolic events (*19*). However, given that prostate cancer is commonly seen in elderly patients, it is important to be mindful of potential neurologic presentations that might occur during or after $^{177}$Lu-PSMA-617 treatment.

Our study had several limitations. First, it was a retrospective, single-center experience. The prevalence and severity of neurologic symptoms could vary within a larger and more diverse patient population. Second, to provide more objective results, we excluded patients with certain preexisting neurologic conditions or chemotherapy-related neurologic complaints. As such, our study did not provide data on these specific patient groups. Third, given our institution's broad referral base and the large number of patients coming from diverse geographic locations, there is a possibility that some individuals may have sought treatment for neurologic symptoms at other facilities without informing the Mayo Clinic care team, resulting in missed data. Lastly, the mean follow-up duration in our study was $12.04 \pm 2.87$ mo. Therefore, some of the reported symptoms might not have been permanent. Additionally, our follow-up period might not have been sufficient to detect delayed neurologic symptoms.

Overall, our study indicated that $^{177}$Lu-PSMA-617 treatment in patients without neurologic symptoms or central nervous system metastases before treatment has a low-neurologic-toxicity profile. After $^{177}$Lu-PSMA-617 treatment, the most common neurologic findings were altered taste, dizziness, headaches, and paresthesia. Severe neurologic symptoms were rare, unlikely to necessitate discontinuation of treatment, and not clearly attributable to $^{177}$Lu-PSMA-617 therapy.

## CONCLUSION

After $^{177}$Lu-PSMA-617 treatment, the most common neurologic symptoms were dysgeusia and dizziness. In this study, our follow-up period and population size might not have been sufficient to detect delayed or uncommon neurologic symptoms. In patients without neurologic symptoms or central nervous system metastases before treatment, we found the development of severe neurologic problems to be rare and unlikely to require discontinuation of treatment.

## DISCLOSURE

Brian Burkett receives research support from GE Healthcare and the Radiological Society of North America. Jacob Orme has a consulting or advisory role with NaNotics and has patents regarding PD-L1 cleavage and immunotherapy resistance in multiple cancers. Daniel Childs receives honoraria from Targeted Oncology, IntrinsiQ, MJH Life Sciences, and International Centers for Precision Oncology Foundation Consulting; has an advisory role with Janssen Biotech and Novartis Research Funding: Janssen Biotech; and receives travel and accommodations expenses from the Prostate Cancer Foundation. Derek Johnson has a consulting or advisory role with Telix. Geoffrey Johnson has a leadership role with Green Clinic and Nucleus RadioPharma; has a consulting or advisory role with AstraZeneca, Blue Earth Diagnostics, Curium Pharma, MedTrace, MorphImmune, Novartis, Siemens Healthineers, Viewpoint Molecular Targeting, Viewpoint Molecular Targeting, and Z-Alpha; receives research funding from Clarity Pharmaceuticals, Clovis Oncology, MedTrace, Novartis, Pfizer, Viewpoint Molecular Targeting, and Viewpoint Molecular Targeting; and has patents on radiopharmaceuticals. Oliver Sartor has stock and other ownership interests in Abbvie, Cardinal Health, Clarity Pharmaceuticals, Convergent Therapeutics, Fusion Pharmaceuticals, Lilly, Ratiopharm, Telix Pharmaceuticals, and United Health Group; receives honoraria from Lantheus Medical Imaging Consulting; has an advisory role with Advanced Accelerator Applications, Amgen, ARTbio, Astellas Pharma, AstraZeneca, Bayer, Blue Earth Diagnostics, Clarity Pharmaceuticals, Fusion Pharmaceuticals, Hengrui Therapeutics, Isotopen Technologien, Janssen, MacroGenics, Medscape, Merck, Northstar, Novartis, Noxopharm, Pfizer, Point Biopharma, Progenics, Ratio, Sanofi, Telix Pharmaceuticals, Tempus, TeneoBio, and Tessa Therapeutics; receives research funding from Advanced Accelerator Applications, Amgen, AstraZeneca, Bayer, Endocyte, InVitae, Janssen, Lantheus Medical Imaging, Merck, point Biopharma, Progenics, and Sanofi; has patents, royalties, or other intellectual property (Koochekpour S, Sartor AO, inventors. Saposin C and receptors as targets for treatment of benign and malignant disorders. U.S. patent awarded January 23, 2007 [patent 7,166,691]); provides expert testimony for Sanofi; and receives travel and accommodations expenses from AstraZeneca, Bayer, Johnson & Johnson, Lantheus Medical Imaging, Progenics, and Sanofi. Ayse Kendi has a consulting or advisory role with Novartis Research Funding. No other potential conflict of interest relevant to this article was reported.

**KEY POINTS**

**QUESTION:** What neurologic symptoms are commonly observed after $^{177}$Lu-PSMA-617 treatment?

**PERTINENT FINDINGS:** In our cohort, the most prevalent neurologic symptoms after $^{177}$Lu-PSMA-617 treatment were dysgeusia, headaches, and dizziness. Severe findings were rare, with no clear evidence linking them directly to the $^{177}$Lu-PSMA-617 treatment.

**IMPLICATIONS FOR PATIENT CARE:** Most of the neurologic symptoms observed after $^{177}$Lu-PSMA-617 treatment in patients without neurologic symptoms or central nervous system metastases before treatment are mild and manageable by conservative means.

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