^{177}Lu-Vipivotide Tetraxetan (^{177}Lu-PSMA-617, Pluvicto) Therapy

Sarah Clements, CNMT, Daniel Tempesta, CNMT, and Heather Jacene, MD

^{177}Lu-vipivotide tetraxetan is a radioligand therapeutic agent for the treatment of prostate cancer (*1*). It binds to prostate-specific membrane antigen (PSMA), which is overexpressed on prostate cancer cells, and the β-radiations emitted by ^{177}Lu result in DNA damage to the tumor cells and surrounding tissue (*2*). An integrative approach with physicians, nurses, technologists, radiation safety officers, and pharmacists is required to ensure the best patient outcomes.

CLINICAL INDICATIONS (*1*)

- ^{177}Lu-vipivotide tetraxetan is used for the treatment of metastatic castration-resistant prostate cancer in adults who have PSMA-positive tumors.

PATIENT SELECTION

Patients undergoing ^{177}Lu-vipivotide tetraxetan treatment should meet all the following criteria:

- Have metastatic castration-resistant prostate cancer (mCRPC) (*1*).
- Been previously treated with androgen receptor pathway inhibition and taxane-based chemotherapy (*1*).
- Have PSMA-positive tumor as determined by PSMA PET/CT imaging (*1*).
  - ^{68}Ga-PSMA-11 and ^{18}F-DCFPyL PET agents are considered equivalent for use in selecting patients for therapy with ^{177}Lu-vipivotide tetraxetan (*3,4*).

CONTRAINDICATIONS

- None (*1*).

TREATMENT PLAN (*1*)

- Intravenously administer 7.4 GBq (200 mCi) of ^{177}Lu-vipivotide tetraxetan every 6 wk for up to 6 administrations.

PATIENT PREPARATION/EDUCATION (*1*)

- Patients should increase their oral fluid intake and are encouraged to increase voiding as frequently as possible to reduce deleterious effects on the kidneys and bladder.
- Patients should be educated on radiation safety precautions before and after the administration of ^{177}Lu-vipivotide tetraxetan. Radiation safety precautions include but are not limited to:
  - Limit contact less than 3 feet from other household members for 2 d and children and pregnant individuals for 7 d. Precautionary measures should include sleeping in a separate bedroom for the aforementioned number of days for each household population.
  - Patients should not participate in sexual activity for 7 d after treatment. For the duration of their treatment course and for 14 wk after their final dose, sexual partners of reproductive potential should use effective contraception.

TREATMENT INSTRUCTIONS (*1*)

- Verify that the patient's complete blood counts, kidney function, and liver function are sufficient to proceed with treatment. Whether or not to procced with treatment is a clinical decision.
- ^{177}Lu-vipivotide tetraxetan is given intravenously over 1–10 min.
  - Methods of administration include injection via disposable syringe, an infusion using the gravity method, and the vial method using a pump.
- Before initiating the treatment and after its completion, the intravenous line used for ^{177}Lu-vipivotide tetraxetan must be flushed with at least 10 mL of 0.9% sterile sodium chloride solution.

THERAPEUTIC DOSE CALCULATIONS (TABLE 1) (*1*)

- The standard dose of ^{177}Lu-vipivotide tetraxetan is 7.4 GBq (200 mCi) every 6 wk for 6 administrations.

TABLE 1
Radiopharmaceutical, Dose, Administration Route, and Infusion Duration of ^{177}Lu-Vipivotide Tetraxetan (*1*)

Radiopharmaceutical	Dose	Administration route	Infusion duration
^{177}Lu-vipivotide tetraxetan (Pluvicto, ^{177}Lu-PSMA-617)	7.4 GBq (200 mCi)	Intravenous	1–10 min

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Treatment may be delayed or the administered radioactivity can be reduced to 5.9 GBq (160 mCi) in the setting of adverse reactions as described in the prescribing information.

- If patients require more than a 10-wk gap between doses, or an adverse reaction persists for greater than 4 wk, or they require a dose less than 5.9 GBq (160 mCi), treatment discontinuation should be considered.

PRECAUTIONS (*1*)

- Patients should be monitored closely for adverse events, including but not limited to myelosuppression and renal toxicity. Patients should be told to notify their clinician if they exhibit any clinical signs of either of these conditions, such as decreased urination frequency, bruising more easily, or excessive tiredness.
- Because ^{177}Lu-vipivotide tetraxetan is a radioactive therapy agent, extra care should be taken to educate patients, their household members, and administering health-care personnel about appropriate radiation safety precautions.

REFERENCES

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