

Peptide Receptor Radionuclide Therapy (PRRT)

Frequently Asked Questions

What is a peptide receptor radionuclide therapy (PRRT)?

Peptide Receptor Radionuclide Therapy (PRRT) is a targeted therapy using a molecule which delivers radioactive material directly to cancer cells. Lutetium-177 DOTATATE (LUTATHERA®) is an FDA approved PRRT which is used to treat certain neuroendocrine carcinomas or neuroendocrine tumors (NETs).

Most NETs have receptors for the peptide somatostatin. Somatostatin analogs such as octreotide or lanreotide are synthetic protein molecules called peptides that bind to these receptors. In the case of PRRT, the peptide used is a variant of octreotide called octreotate. The octreotate is combined with a radioactive metal called lutetium-177 (Lu-177). This radiopeptide is then responsible for delivering a dose of radiation directly to the neuroendocrine tumor cells causing them to shrink or die.

How peptide receptor radionuclide therapy (PRRT) is used to treat NETs

PRRT is used to treat NETs by slowing tumor growth, stopping tumor growth all together, to relieve symptoms and improve survival. Patients who qualify for PRRT treatment include those who:

- are diagnosed with certain advanced or metastatic NETs
- are not surgical candidates
- have symptoms or findings that are not responding to other forms of treatment
- have proven somatostatin receptors on their tumors

How peptide receptor radionuclide therapy (PRRT) is delivered

Peptide receptor radionuclide therapy (PRRT) is administered intravenously (IV) through a vein. To protect the kidneys from the effects of radiation, the intravenous amino acid

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solution is given IV before, during and after the radioactive drug infusion. The total infusion time is about 4 hours.

PRRT is given in up to 4 sessions over 6 months and may require a short hospital stay in rare cases. Selected patients may undergo molecular scanning to map the location of the radiopeptide within the body. This scanning may be done in the days after the PRRT infusion.

Radiation will remain in the body for several days, but there is little radiation leaving the body and so the precautions patients must follow after treatment are relatively mild. This includes not having prolonged close contact with other people for two days after each treatment. The radionuclide is excreted in urine and feces and your healthcare team will provide bathroom hygiene and other radiation safety instructions to follow during this period of time to avoid exposure to others. This will include instructions on avoiding pregnancy or impregnating others for about 6 months after the completion of therapy as well as a pregnancy test for patients of childbearing potential.

Common Side Effects

Commonly seen side effects with peptide receptor radionuclide therapy (PRRT) include:

- potentially severe nausea and vomiting from the amino acid infusion
- low white blood cell counts
- low platelet counts
- elevated liver enzymes, specifically gamma-glutamyl transferase, aspartate aminotransferase and alanine aminotransferase
- elevated blood sugar levels
- low potassium levels
- fatigue
- temporary partial hair loss
- hormonal changes which can temporarily worsen symptoms
- potential for long term complications like reduced kidney and bone marrow function or leukemia (rare)



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When to Notify Your Healthcare Team

It is important to notify your healthcare team if you experience:

- severe nausea or vomiting
- yellowing of the skin or whites of the eyes
- abdominal pain, especially in the upper right side of the abdomen
- decreased urination or dark, tea colored urine
- feelings of severe fatigue or tiredness
- signs of infection like fever, chills, nausea, vomiting, diarrhea or skin changes
- symptoms of low potassium levels like muscle cramps or constipation
- easy bruising or bleeding
- any other concerning symptoms

References:

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