

## Outcomes of Peptide Receptor Radionuclide Therapy (PRRT) in Patients with Metastatic Low Grade Neuroendocrine Tumors (mNETs)

**Boris G. Naraev<sup>1</sup> MD, PhD**, Nancy Sharma<sup>1</sup>, MD, Eric S. Engelman, DO<sup>1</sup>, David L. Bushnell<sup>1,2</sup>, Jr., MD, Thomas M. O'Dorisio<sup>4</sup>, MD, Thorvardur R. Halfdanarson, MD<sup>1</sup>

<sup>1</sup>University of Iowa Hospitals and Clinics, Iowa City, Iowa, 52242; <sup>2</sup>Iowa City Veterans Administration Medical Center, Diagnostic Imaging Service

**Background:** PRRT is frequently used for patients (pts) with mNETs but PRRT is not readily available in the US. We report on 108 patients seen at the University of Iowa who underwent PRRT.

**Methods:** Cases were identified by searching our institutional NET database. Early stage (AJCC 1-3) and high-grade tumors were excluded. Groups were compared using a Wilcoxon rank-sum test and survival calculated with the Kaplan-Meier method.

**Results:** Men were 62% and women 38%; median age at diagnosis was 52 years (25 – 78). The origin of the primary tumor was small bowel (SBNET) 43.5%, pancreas (PNET) 27.8%, lung 4.6%, unknown primary 11.1%, other sites 13%. PRRT was performed at the University of Basel, Switzerland in 72%, University of Iowa in 26% and elsewhere in 2%. 97 patients received two treatments. <sup>90</sup>Y was used in 86% and <sup>177</sup>Lu in 13% for the first PRRT. The survival of patients is shown in the table. Radiographic responses (any) at 1-6 months after PRRT were observed in 62%, 11% had a mixed response and 18% progressed. A biochemical response (>50% reduction) in chromogranin A and pancreastatin was seen in 16% and 19% respectively but data was frequently missing.

**Conclusion:** Patients with mNETs enjoy a relatively long survival. The OS from 1<sup>st</sup> PRRT was considerably less than OS after diagnosis, suggesting that PRRT is used late in the

disease course. PRRT appears to be a valuable treatment option for mNETs, especially SBNETs, and its role earlier in the disease course warrants investigation.

### Survival

<b>Site</b>	<b>OS from Diagnosis (years)</b>	<b>OS from PRRT #1 (months)</b>	<b>TTP from PRRT #1 (months)</b>
All Sites	9.9	40.6	39.6
SBNETs	13.7	96.7	60.3
PNETs	5.7	39.4	63.1
Lung	2.7	22.7	4.5
Unknown primary	4.1	20.7	24.1
Other	7.2	52.0	26.6
	P<0.0001	P=0.1	P<0.0001

OS: Median overall survival