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A Clinical Score(CS) for Well-Differentiated Neuroendocrine Tumor(WD-NET) Patients(Pts) Undergoing Peptide Receptor Radionuclide Therapy(PRRT)

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BACKGROUND: Despite the benefit of PRRT for WD-NET pts, questions regarding when to sequence the treatment(tx) and which specific pts are optimal candidates for the tx, remain. We developed a CS for pts initiating PRRT to explore possible answers.

METHODS: Pts with progressive metastatic WD-NETs (N=99) treated with PRRT between 3/25/2017-10/25/2019 at Vanderbilt Ingram Cancer Center(VICC) (N=75) and Rush Medical Center(RMC) (N=24) were scored; the CS included 5 elements: available non-PRRT txs for tumor(t) type, prior systemic txs, pt symptoms, involved organs and peritoneal carcinomatosis. All pts at VICC were prospectively scored, while pts from RMC were scored retrospectively with the investigator blinded to pt outcomes(ocs). The primary oc, progression-free survival(PFS), was estimated by the Kaplan-Meier method; a Cox proportional-hazards model adjusting primary t site, t grade and PRRT doses administered was used to study CS utility. Key secondary ocs included overall survival(OS), adverse events and symptomatic benefit, based upon CS.

RESULTS: Median pt age was 63.9 while median pt CS was 4 (range 1-8). Most pts possessed a small intestinal (N=57) or pancreatic (N=20) primary t. Pts with a CS > 4 and ≤ 4 had a median PFS of 10.9 months(m) (95% confidence interval(CI) 7.33-13.2) and not reached(NR) (95% CI 18 m-NR), respectively. On multivariable analyses, the hazard ratios for PFS and OS in pts with a CS > 4 compared to pts with a CS ≤ 4 were 1.56 (95% CI 1.24-1.96) and 1.79 (95% CI 1.09-2.94), respectively.

CONCLUSION: Pts with a CS ≤ 4 experienced marked PFS and OS benefit with PRRT compared to pts with a CS > 4, suggesting the possibility that pts with lower disease burden and less pretreatment may have improved ocs with PRRT. Though the CS requires validation, it is the first such score reported for WD-NET pts being considered for PRRT.

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