

The Healthcare and Economic Impact of Diarrhea on US Patients with Carcinoid Syndrome

Michael S. Broder, MD, MSHS¹; Gordon H. Sun, MD, MS¹; Maureen P. Neary, PhD²; Eunice Chang, PhD¹

¹Partnership for Health Analytic Research, LLC, Beverly Hills, CA 90212

²Novartis Pharmaceuticals Corporation, East Hanover, NJ 07936

Background: Carcinoid syndrome (CS) is caused by neuroendocrine tumors actively secreting serotonin; one of the most common symptoms is diarrhea. The healthcare and economic burden of diarrhea in CS patients has not been previously quantified.

Methods: We conducted a retrospective cohort study using MarketScan® from 1/1/2003 to 12/31/2012. Newly diagnosed CS patients had 1 medical claim for CS (ICD-9-CM code 259.2) plus ≥ 1 additional claim for either CS or carcinoid tumors (ICD-9-CM 209.x), in any diagnostic field. All patients were disease-free for 1 year prior to CS diagnosis and were followed for 1 year. Non-infectious diarrhea was identified using ICD-9-CM 564.5 and 787.91. We compared healthcare resource utilization (HRU) and costs within 1 year of CS diagnosis among patients with and without diarrhea.

Results: There were 2,822 newly diagnosed patients with CS in any diagnostic field. Overall mean age was 51.5 years and 56.9% were women. Patients had a mean Charlson Comorbidity Index of 3.6. In this cohort, 534 (18.9%) of whom had ≥ 1 claim associated with diarrhea.

Patients with diarrhea more commonly had ≥ 1 hospitalization (49.6% vs. 39.6%, $p < .001$) or ≥ 1 ED visit (13.4% vs. 9.2%, $p < .001$), as well as more office visits (25.5 vs. 18.7, $p < .001$), compared to those without diarrhea. Mean duration of hospitalization of patients with diarrhea was longer than in those without diarrhea (11.6 vs. 8.0, $p < .001$). Similar trends were observed among HRU claims with a CS- or carcinoid tumor-related primary diagnosis. Patients with diarrhea accrued 58.9% higher annual total costs than those without diarrhea (\$82,032 vs. \$51,621, $p < .001$).

Conclusion: The burden of illness in newly diagnosed CS patients with diarrhea is significantly higher than in those without the diagnosis. Further research is needed to better understand the drivers of costs in patients with severe diarrhea and costs related to complications from diarrhea.