Basivertebral Radiofrequency Nerve Ablation: Who Is Getting the Procedure and Is It Associated With Reduced Opioid Utilization?

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Low back pain is the most common cause of disability in the United States. New interventions, such as basivertebral nerve radiofrequency ablation (BVNRFA) are evolving as a potential option to address vertebrogenic low back pain (VLBP). However, demographics of those for whom this is being applied in general clinical use have not been well described. Furthermore, while decreasing rates of opioid use following BVNRFA have been suggested by some of the clinical trials, the external validity of these findings has not yet been established. METHODS:

Adult patients who underwent BVNRFA 2022 Q1-Q3 were identified from the PearlDiver administrative database (CPT-64628 first approved for 2022) relative to those with VLBP who did not have this procedure. A random sampling of 100,000 patient with VLBP without BVNRFA were selected as a control cohort (VLBP-BVNRFA). For both cohorts, exclusion criteria included: age <18 years, those with a diagnosis of trauma, infection, or neoplasm 6 months prior to diagnosis of VLBP. Patient factors including clinical factors (age, sex, Elixhauser Comorbidity Index [ECI], and prior treatments) as well as non-clinical factors (geographic region and insurance plan) were compared between the cohorts with multivariate analysis.

For secondary analysis of opioid usage in the peri-BVNRFA time periods, the treatment group was filtered for patients active in the database during the 6 months before and after BVNRFA. Within this group, narcotic usage was determined using Uniform System of Classification (USC) codes in the 6 months prior to and after BVNRFA. Median averaged morphine milligram equivalents per day (MMED) were determined for each of the time periods and compared with the Kruskal-Wallis non-parametric test.

RESULTS:

A total of 738 VLBP+BVNRFA patients met criteria for study inclusion. Compared to controls, those who underwent the procedure were independently more likely to be associated with the following clinical factors associated: history of opioid use (OR=1.62, p<0.001) and male sex (OR=1.37, p<0.001). They were also independently more likely to be associated with the following non-clinical factors: geographic region (relative to South, West [OR=2.63, Northeast [OR=2.17], p<0.001) and insurance type (relative to commercial, Medicare [OR=2.38,p<0.001], Medicaid [OR=0.65, p=0.033])

In the 6 months prior to BVNRFA and afterwards, an equal percentage of 54.2% of VLBP patients were prescribed opioids. Also, the median MMED in the 6 months before was 100 compared to 88 afterwards (p=0.348).

DISCUSSION AND CONCLUSION:

Initial data from a national population demonstrates significant variation in both clinical and non-clinical factors in patients who underwent BVNRFA suggesting varied adoption of the procedure. Notably, the secondary analysis found similar narcotics were prescribed in the 6 months before and after their BVNRFA procedure.