O-12

The diagnostic accuracy of vasoactive intestinal peptide (VIP) for VIPoma

Jack Korleski, Luis Ospina Velasquez, Josh Bornhorst, Alicia Algeciras-Schimnich, Karl Ness, Timothy Hobday, Patrick McGarrah, Rachel Eiring, Randall Pearson, Thor Halfdanarson.

Mayo Clinic Rochester, MN.

BACKGROUND

VIPoma is a challenging diagnosis and depends on clinical variables, VIP concentrations, and advanced imaging. While VIP concentrations are commonly elevated in VIPoma, the optimal threshold for screening/ diagnostic purposes is not well defined. We aimed to study this in a single institution population.

METHODS

We obtained results from VIP test orders from 2011-2023 and reviewed the medical record for patients who had concentrations greater than the established reference limit of 75 pg/mL. We assessed the reason for VIP testing and for the presence of a VIPoma. Medical conditions previously reported to result in elevated VIP concentrations were also collected (small bowel resection, inflammatory bowel disease, and CKD).

We compared VIP concentrations between patients who did vs those who did not have a VIPoma (student's t-test with unequal variance) along with the medical conditions listed above. We then completed a binomial logistic regression analysis to determine the optimal threshold for VIP concentrations to predict a VIPoma. Once this was determined, we calculated the odds ratio of diagnosing a VIPoma at differing VIP thresholds.

RESULTS

76 patients met the selection criteria for elevated VIP concentration. Of these, twelve cases of VIPoma were diagnosed. All patients had chronic diarrhea and six of the patients had a previous diagnosis of a pancreatic neuroendocrine tumor that was being monitored for functional status. VIP concentrations were drawn for acute or episodic diarrhea along with flushing/ diaphoresis. However, VIPoma was not diagnosed in these clinical scenarios.

While the mean VIP concentration was increased in patients with a VIPoma relative to those without, the difference was not statistically significant for this dataset (433 pg/mL vs 224 pg/mL, p value=0.39). Our binomial regression analysis had an area under the curve (AUC) of 0.833 for an elevated VIP concentration to predict a VIPoma. When including the clinical indication for testing, the AUC increased to 0.875. The optimal VIP threshold was 211 pg/mL (OR 6.9, pval=0.02). Using the threshold of 75 pg/mL for an elevated VIP, the positive predictive value for a VIPoma was 0.16.

CONCLUSIONS

VIP concentrations are integral to the diagnosis of a VIPoma. However, elevated VIP concentrations are not specific for a VIPoma and most patients with an elevated VIP concentration do not have a VIPoma. We recommend that VIP only be drawn in certain clinical scenarios, such as chronic diarrhea and monitoring known neuroendocrine tumors, to avoid unnecessary medical investigations.

ABSTRACT ID 28684