A Pilot Study for the Expression of Cancer-derived Immunoglobulin G in Intraductal Papillary Mucinous Neoplasms

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BACKGROUND
- Pancreatic cystic neoplasms (PCNs) have become common with improving radiographic technologies.
- Intraductal papillary mucinous neoplasms (IPMNs) account for the majority of PCN cases, been linked as precursors of pancreatic cancer.
- It is important to identify high-risk IPMNs for surgery.
- Cancer-derived Immunoglobulin G (CIgG) has been detected in pancreatic cancer and is closely related to poorer differentiation of pancreatic cancer.

MATERIALS AND METHODS
- Eighty-eight patients diagnosed with IPMN who underwent surgical resection at Johns Hopkins Hospital were enrolled in the present study.
- The expression of CIgG was detected by immunohistochemistry in formalin-fixed, paraffin-embedded pathological samples of IPMN patients.
- Normal pancreatic tissues and pancreatic cancer tissues were included as negative and positive controls.
- The expression of CIgG was measured as the ratio of epithelial cells with positive CIgG expression to the entire number of epithelial cells in each relevant IPMN lesion in a 200× magnification field.
- The optimal cutoff point of CIgG expression for discriminating high grade (HG)/invasive (inv)-IPMNs from low grade (LG)-IPMNs was determined by Youden’s statistic.

RESULTS
- CIgG was expressed in IPMN lesions and was highly expressed in 31 IPMN patients (35.2%).
- The expression of CIgG was significantly elevated during the malignant progression of IPMN (LG-IPMN vs. HG-IPMN, \( P=0.001 \); HG-IPMN vs. inv-IPMN, \( P=0.004 \); LG-IPMN vs inv-IPMN, \( P<0.001 \)).
- The AUC for CIgG expression in differential diagnosis between LG-IPMN and HG/inv-IPMN was 0.765 (0.663-0.849, \( P<0.001 \)).
- The sensitivity and specificity of CIgG in discriminating LG-IPMN from HG/inv-IPMN was 61.4% (95% CI 0.455 to 0.756) and 90.9% (95% CI 0.783 to 0.975), respectively.

CONCLUSION
- CIgG participates in the malignant progression of IPMN and could serve as a potential diagnostic biomarker for IPMN.