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Natural History Of Low-risk Branch-duct Intraductal Papillary Mucinous Neoplasm And Indeterminate Pancreatic Cysts And Its Implications On Surveillance

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Background : There is an increasing incidence of pancreatic cystic lesions detected on cross sectional imaging. While guidelines have been developed to risk stratify these lesions and provide guidance on management of worrisome and high-risk lesions, there remains a paucity of evidence on the appropriate surveillance strategies for low-risk lesions. We conducted a retrospective review of low-risk branch-duct intraductal papillary mucinous neoplasms (BD-IPMN) and indeterminate pancreatic cysts to determine their natural history and explore possible implications on their surveillance.

Methods : We conducted a retrospective review of all patients with radiologically-detected pancreatic cysts from 1 January 1998 to 31 December 2021 at a single tertiary referral centre. Only patients with low-risk BD-IPMNs and indeterminate pancreatic cysts who had at least 12 months of follow-up data were included. Baseline demographic and clinical characteristics at diagnosis and follow-up data pertaining to change in cyst size and development of worrisome (WF) and/or high-risk features (HF) were recorded and analysed. Patients were grouped into 3 categories at baseline based on cyst size (<10mm, 10-19mm, 20-29mm) for comparison. The natural history for each size category was further interrogated by charting the size distribution and cumulative incidence of WF and/or HF annually for 5 years.

Results : We studied 1668 patients with low risk BD-IPMN and indeterminate pancreatic cysts, of which 794 (47.6%), 652 (39.1%) and 222 (13.3%) were <10, 10-19 and 20-29mm in size at baseline, with an overall median follow-up duration of 48 months (range 12-251). When comparing across the 3 size categories, there was no gender preponderance, and a slightly older median age (65 vs 67 vs 68 years, $p=0.002$) with increasing cyst size at baseline. There was a higher proportion of WF (6.8 vs 9.8 vs 34.7%, $p<0.001$) and HF (2.1 vs 2.8 vs 7.7%, $p<0.001$) development with increasing cyst size at baseline. In examining the natural history of each size category on an annual basis for 5 years: cysts <10mm have a cumulative incidence of 11.4% WF and 2.1% HF, with 94.3% of cysts measuring <30mm at 5 years; cysts 10-19mm have a cumulative incidence of 17.2% WF and 2.8% HF, with 94.7% of cysts measuring <30mm at 5 years; cysts 20-29mm have a cumulative incidence of 42.7% WF and 11.1% HF, with 63.8% of cysts measuring <30mm at 5 years.



Conclusions : Amongst low-risk pancreatic cysts, the risk of WF and HF development is higher amongst larger size categories. As such, surveillance intervals should be tailored based on it.

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