

## 西安交大科研人员在胰腺神经内分泌肿瘤研究中取得重要进展

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胰腺神经内分泌肿瘤 (Pancreatic neuroendocrine tumors) 是源于神经内分泌系统多能干细胞的一类异质性肿瘤, 是近年来被人们逐渐深入认识的一类肿瘤。手术切除是胰腺神经内分泌肿瘤唯一有望根治的手段。由美国癌症联合委员会和国际抗癌联盟建立的AJCC TNM分期是基于肿瘤特征 (T)、淋巴结转移 (N) 和远处转移 (M) 三个特征对肿瘤进行分期。作为国际上最为通用的肿瘤分期系统, AJCC TNM分期是全世界肿瘤临床医生诊治的重要参考依据。该分期系统依据循证医学研究证据, 每若干年更新一次, 以指导全世界临床医生的临床实践。

近日, 一附院肝胆外科吕毅教授、胰腺病区仵正主任、张谓丰教授、薛峰博士等与美国俄亥俄州立大学、埃默里大学等等8个国际知名大学 (中心) 合作的研究论文“Development and Validation of a Modified Eighth AJCC Staging System for Primary Pancreatic Neuroendocrine Tumors”再次被外科学最权威期刊Annals of Surgery (影响因子: 9.476) 接收发表。

在既往研究中, 张谓丰等通过国际多中心合作研究, 于2019年7月在Annals of Surgery发表论著“New Nodal Staging for Primary Pancreatic Neuroendocrine Tumors: A Multi-institutional and National Data Analysis”, 创新性提出基于阳性淋巴结个数的胰腺神经内分泌肿瘤新的淋巴结 (N) 分期: N0 (无淋巴结转移), N1 (1-3个淋巴结转移), N2 (≥4个淋巴结转移)。在新的研究中, 该研究团队进一步完整修改胰腺神经内分泌肿瘤第8版AJCC TNM分期, 为分期的进一步修订和完善奠定基础。一附院肝胆外科张谓丰教授为第一作者, 吕毅教授、仵正教授、薛峰博士为合作作者。西安交通大学第一附属医院为第一作者单位。该论文得到一附院临床研究重点项目资助。

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### Development and Validation of a Modified Eighth AJCC Staging System for Primary Pancreatic Neuroendocrine Tumors

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TABLE 1. The Eighth Edition of the AJCC Staging Definition for PDAC and pNETs, and the Modified Eighth Staging Definition for pNETs

Eighth AJCC Staging System for PDAC		Eighth AJCC Staging System for pNETs	
T1	Tumor limited to the pancreas, ≤2 cm	T1	Tumor limited to the pancreas, <2 cm
T2	Tumor limited to the pancreas, 2–4 cm	T2	Tumor limited to the pancreas, 2–4 cm
T3	Tumor limited to the pancreas, >4 cm	T3	Tumor limited to the pancreas, >4 cm; or tumor invading the duodenum or bile duct
T4	Tumor involves the celiac axis, the superior mesenteric artery, and/or common hepatic artery, irrespective of size	T4	Tumor invading adjacent organs (stomach, spleen, colon, adrenal gland) or the wall of large vessels (celiac axis or the superior mesenteric artery)
N0	No regional lymph node metastasis	N0	No regional lymph node involvement
N1	1–3 regional lymph node metastasis	N1	Regional lymph node involvement
N2	≥4 regional lymph node metastasis	M0	No distant metastasis
M0	No distant metastasis	M1	Distant metastasis
M1	Distant metastasis		
Modified eighth AJCC Staging System for pNETs		Modified Eighth AJCC for pNETs	
T1	Tumor limited to the pancreas, <2 cm	IA	T1N0M0
T2	Tumor limited to the pancreas, 2–4 cm	IB	T2N0M0
T3	Tumor limited to the pancreas, >4 cm; or tumor invading the duodenum or bile duct	IIA	T3N0M0
T4	Tumor invading adjacent organs (stomach, spleen, colon, adrenal gland) or the wall of large vessels (celiac axis or the superior mesenteric artery)	IIIB	T4N0M0
N0	No regional lymph node metastasis	III	T1–3N1M0
N1	1–3 regional lymph node metastasis	III	T4N1M0
N2	≥4 regional lymph node metastasis	IV	T4N2M0, T4N3M0
M0	No distant metastasis		
M1	Distant metastasis		

Staging Systems	SEER Registry				Multi-institutional Database				
	Eighth AJCC				Eighth AJCC				
	I	II	III	IV	I	II	III	IV	
Modified AJCC	I	729	657	0	0	308	162	0	0
	II	0	435	563	0	0	125	134	0
	III	0	0	359	0	0	84	0	0
	IV	0	0	0	0	0	0	12	0

AJCC indicates American Joint Cancer Committee; PDAC, pancreatic ductal adenocarcinoma; pNETs, pancreatic neuroendocrine tumors; SEER, surveillance, epidemiology, and end results.

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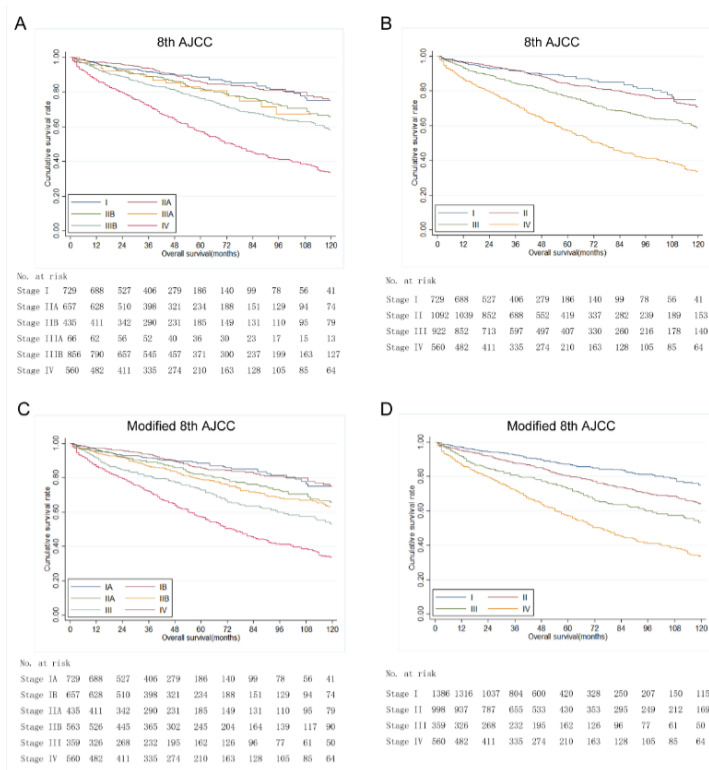
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