

Neuroendocrine Tumors in Young Adult Patients: Epidemiological Profile



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BACKGROUND

- Neuroendocrine tumors (NETs) comprise a rare disease, mainly in young patients (pts). However, an increase in the number of cases in young-onset (18-40 years old) NETs (YONET) has been observed in our clinical practice.
- The data about YONET epidemiological profile are scarce.

OBJECTIVES

- The aim of this study is to assess the frequency and clinical aspects of YONET in comparison to late-onset (>40 years old) NETs (LONET).

POPULATION AND METHODS

- We performed a retrospective analysis of all consecutive pts diagnosed with gastroenteropancreatic NETs treated from Jan 1st 2010 to Dec 31th 2018 at AC Camargo Cancer Center, a large cancer center located in São Paulo, Brazil.
- Data were collected from medical files.
- Patients were included if they were 18yo or older, had a histologically proven diagnosis of gastroenteropancreatic NETs at any staging or grade.
- Descriptive analysis was used to summarize pts characteristics, by groups of YONET and LONET. Differences between groups were assessed by the Fisher exact test or Pearson chi-square test. All analysis were considered statistically significant when $p < 0.05$. All analyses were performed with SPSS 22.0.

RESULTS

- A total of 456 pts were enrolled.
- The most common origin was midgut (150, 32.9%) followed by pancreas (121, 26.5%).

Table 1. Primary Site

	≤40a N(%)	>40a N(%)	Total N(%)	P value
Midgut	35 (38,9%)	115 (31,4%)	150 (32,9%)	0,177
Pancreas	21 (23,3%)	100 (27,3%)	121 (26,5%)	0,443
Gastric	23 (25,6%)	92 (25,1%)	115 (25,2%)	0,935
Left Colon, Rectal Anal Canal	11 (12,2%)	55 (15%)	66 (14,5%)	0,498

- Male/female were 206 and 250 respectively, and there was no significant difference between groups.
- YONET occurred in 90 (19.7%) pts: they were more likely to be non-smoker ($p=0.001$), had less comorbidities ($p=0.001$) and less second neoplasms ($p=0.003$).
- YONET pts also had a higher frequency (6.7% vs. 3.0%) of known genetic syndromes, but regarding family history, there was no difference between groups.

Table 2. Baseline characteristics of patients

	≤40a N(%)	>40a N(%)	Total N(%)	P value	
Total	90 (19,7%)	366 (80,3%)	456 (100%)		
Age (Median)	35 (32-36)	56 (55-59)	53 (51-55)		
Gender	Female	56 (62,2%)	194 (53%)	0,125	
	Male	34 (37,8%)	172 (47%)		206 (45,2%)
Smoking	13 (14,4%)	115 (31,4%)	128 (28,1%)	0,001	
Comorbidities	0	59 (65,6%)	80 (21,9%)	0,001	
	1 ou 2	26 (28,9%)	215 (58,8%)		241 (52,8%)
	≥3	5 (5,3%)	71 (19,4%)		76 (16,7%)
Diabetes	4 (4,4%)	86 (23,5%)	90 (19,7%)	<0,001	
Hypertension	8 (8,9%)	181 (49,5%)	189 (41,4%)	<0,001	
Body mass index >30	7 (12,7%)	63 (22,5%)	70 (15,4%)	0,103	
Another primary neoplasm	8 (8,9%)	84 (23%)	92 (20,2%)	0,003	
Genetic Syndrome	6 (6,7%)	11 (3%)	17 (3,7%)	0,118	
Family History		54 (60%)	229 (62,6%)	0,716	
	First Degree	22 (24,4%)	161 (44%)		183 (40,1%)
	Second Degree	45 (50%)	125 (34,2%)		170 (37,3%)

- YONET pts were more symptomatic at diagnosis ($p=0.001$), were more likely to present well differentiated NETs ($p=0,005$) and were less likely to present metastatic NET at diagnosis (109 [29.8%] among the LONET pts and 16 [17.8%] among the YONET pts; $p=0.02$) in comparison with LONET pts.

Table 3. Clinical and anatomopathological characteristics

	≤40a N(%)	>40a N(%)	Total N(%)	P value	
Symptomatic	70 (77,8%)	200 (54,6%)	270 (59,2%)	<0.001	
Grade	1	60 (66,7%)	203 (55,5%)	0,161	
	2	22 (24,4%)	104 (28,4%)		126 (27,6%)
	3	7 (7,8%)	55 (15%)		62 (13,6%)
AP Description	NET	84 (93,3%)	305 (83,3%)	0,005	
	NEC	3 (3,3%)	53 (14,5%)		56 (12,3%)
Functional Tumor	41 (9%)	12 (13,3%)	29 (7,9%)	0,108	
Carcinoid Syndrome	5 (5,6%)	20 (5,5%)	25 (5,5%)	0,057	

Table 4. Metastatic Tumors

	≤40a N(%)	>40a N(%)	Total N(%)	P value	
Metastatic (de novo)	16 (17,8%)	109 (29,8%)	125 (27,4%)	0,02	
Site	Liver	15 (93,7%)	93 (86,1%)	108 (87,8%)	0,123
	Lymph node	9 (56,2%)	36 (33,3%)	45 (36,6%)	0,045
	Peritoneum	3 (18,7%)	17 (15,7%)	20 (16,3%)	0,675
	Bone	4 (25%)	15 (13,9%)	19 (14,4%)	0,199
	Lung	2 (12,5%)	7 (6,5%)	9 (7,3%)	0,340
Others	3 (18,75%)	16 (14,8%)	19 (15,4%)	0,603	

CONCLUSIONS

- This study presented one of the largest cases of YONET pts known in the literature.
- We demonstrated important population differences and clinical aspects in this group, reinforcing the need for more research on YONET.