

# 27. BÖLÜM

## NÖROENDOKRİN TÜMÖRLERİN KLİNİK SINIFLAMASI VE NÖROENDOKRİN BELİRLEYİCİLER

Şerife SİVRİDEMİR<sup>1</sup>

### GİRİŞ

Nöroendokrin tümör (NET)'ler vücudun çeşitli bölgelerinde oluşabilen nöron ve endokrin komponenti olan heterojen bir özellik gösteren neoplazmlardır. Klinik ve patolojik özellikleri buldukları dokuya ait özellikler gösterse de bulunduğu alandan farklı özellikler de gösterebilmektedir. Sinaptik bir yapı içermeyen bu nöron hücreler, serotonerjik nöronlardaki gibi monoamin depolar. Bu monoaminlerin sentezi ve salgısı endokrin komponentinden sağlanır (1).

NET'ler endokrin sistem boyunca yaygın olarak bulunurlar. Gastrointestinal sistemde (apendiks, ileum, rektum) yaygın olarak bulunmakla birlikte, akciğer ve bronşlarda, hipofiz, tiroid (C hücreleri) ve paratiroid bezlerinde, pankreas adacıklarında, paraganglia gibi organlarda bulunmaktadır. Buldukları bölgeye ait hücre tipine özgü peptid hormonlar /aminler salgılayan hücreler, hücreye özgü olmayan sinaptofizin ve kromogranin A gibi belirteçler de salgılamaktadır (2).

NET'lerin sınıflandırılması karmaşıktır, yerleşim yerine göre yapılan histolojik sınıflandırma ve klinik değerlendirme ve derecelendirme sonucunda her organ için farklı sınıflama sistemleri oluşmuştur. Bu durum patologlar ve klinisyenler arasında sorun oluşturmuştur. Bu karışıklığı azaltmak için Dünya Sağlık Örgütü (WHO) tarafından ortak bir yaklaşım konusunda sınıflamalar yapılmıştır.

<sup>1</sup> Uzm. Dr., Başkent Üniversitesi Ankara Hastanesi, Medikal Onkoloji Kliniği, drserifesivridemir@gmail.com

**KAYNAKLAR**

1. GA Kaltsas, GM Besser, AB Grossman, Diagnosis and medical management of advanced neuroendocrine tumors, *Endocr Rev*, 25 (2004), p. 458-511
2. Schimmack S, Svejda B, Lawrence B, Kidd M, Modlin IM: The diversity and commonalities of gastroenteropancreatic neuroendocrine tumors. *Langenbecks Kemer Surg* 2011; 396:273-298.
3. E Williams, M Sandler Classification of carcinoid tumors. *Lancet*, 1 (7275) (1963), p. 238-239
4. Jensen RT. Pancreatic endocrine tumors: Latest developments. *Ann Oncol* 1999; 10:170.
5. Eehalt F, Saeger HD, Schmidt CM, Grützmann R. Neuroendocrine tumors of the pancreas. *Oncologist* 2009; 14:456.
6. Uppin Megha S, Uppin Shantveer G, Sunil C et al. Clinicopathologic study of neuroendocrine tumors of gastroenteropancreatic tract: a single institutional experience. *Journal of Gastrointestinal Oncology* 2017; 8(1):139-147.
7. Ohmoto A, Rokutan H, Yachida S. Pancreatic neuroendocrine neoplasms: Basic biology, current treatment strategies and prospects for the future. *International journal of molecular sciences* 2017; 18(1):143
8. F.T. Bosman, F. Carneiro, R.H. Hruban, N.D. Teise, WHO classification of digestive system tumors, World Health Organization (2010) Rindi G, Arnold R, Capella C et al. Nomenclature and classification of digestive neuroendocrine tumours.
9. Histological characterization and improvement in the prognostic evaluation of 209 gastric neuroendocrine neoplasm. AuLa Rosa S, Inzani F, Vanoli A, Klersy C, Dainese L, Rindi G, Capella C, Bordi C, Solcia E, *Humol.* 2011;42(10):1373. Pubmed
10. World Health Organization classification of tumours, pathology and genetics of tumours of the digestive system 2010;10-12.
11. Cree IA, Foss AJ, Luthert PJ. Undefined high-power fields. *spear.* 1996; 347(8996):273-4.
12. Rindi G, Klöppel G, Alhman H, et al others TNM foregut (neuro)staging of endocrine tumors: a consensus proposal, including a rating system. *Virchows Arch* 2006; 449:395.
13. Rindi G, Klöppel G, Couvelard A, et al. *Virchows Arch* 2007; 451:757.
14. Strosberg JR, Cheema A, Weber J, et al. Prognostic validity of a new American Joint Committee on Cancer Staging Classification for pancreatic neuroendocrine tumors. *J Clin Oncol* 2011; 29:3044.
15. Mougey AM, Adler DG. Neuroendocrine tumors: review and clinical update. *Hospital Physician* 2007; 43(11):124
16. Liu DJ, Fu XL, Liu W et al. Clinicopathological, treatment, and prognosis study of 43 gastric neuroendocrine carcinomas. *World Journal of Gastroenterology* 2017; 23(3):516.
17. Dumlu EG, Karakoç D & Özdemir A. Nonfunctional pancreatic neuro endocrine tumors: Advances in diagnosis, management, and controversies. *International Surgery* 2015;100(6):1089-1097
18. Cidon EU, New therapeutic approaches to metastatic gastroenteropancreatic neuroendocrine tumors: A glimpse into the future. *World J Gastrointestinal Oncology* 2017; 9(1):4-20

19. Modlin IM, Kidd M, Latich I, et al. Current condition of gastrointestinal carcinoids. *Gastroenterology* 2005; 128:1717.
20. Modlin IM, Kidd M, Latich I, et al. Current condition of gastrointestinal carcinoids. *Gastroenterology* 2005; 128:1717.
21. Feldman JM. Carcinoid tumors and syndrome. *Semin Oncol* 1987; 14:237.
22. Feldman JM. Carcinoid tumors and syndrome. *Semin Oncol* 1987; 14:237.
23. Kvols LK. Metastatic carcinoid tumors and malignant carcinoid syndrome. *Ann N Y Acad Sci* 1994; 733:464.
24. Maton PN. Carcinoid syndrome. *JAMA* 1988; 260:1602.
25. 25. Circulation, respiratory and serotonin levels of Törnebrandt K, Nobin A, Ericsson M, Thomson D. in carcinoid patients during neurolept anesthesia. *Anesthesia* 1983; 38:957.
26. B Thompson, J Avan Heerden, JK Martin, JA Carney Carcinoid tumors of the gastrointestinal tract: presentation, management and prognosis *Surgery*, 98 (1985), p. 1054-1063
27. WW de Herder, SW Lamberts, Somatostatin and somatostatin analogues: diagnostic and therapeutic uses, *Curr Opin Oncol*, 14 (2002), p. 53-57
28. Chen L, Chen M, Chen J. Advances of circulating biomarkers in gastro enteropancreatic neuroendocrine neoplasms. *Chinese journal of gast rointestinal surgery* 2017;20(3):357.
29. WC Chou, JS Chen, YS Hung, JT Hsu, TC Chen, CF Sun, CH Lu, TL Hwang, Plasma chromogranin A levels predict survival and tumor response in patients with advanced gastroenteropancreatic neuroendocrine tumors, *Anticancer Res*, 34 (10) (2014), pp. 5661-5669
30. Campana D, Nori F, Piscitelli L, et al. Chromogranin A: is neuroendocrine a useful marker of tumors? *J Clin Oncol* 2007; 25:1967.
31. Tesselaar M, Corset T, Kidd M et al. Validation of a Blood Neuroendoc rine Tumor Gene Signature, the NETest, in a Netherlands NET Cohort. *Neuroendocrinology* 2016; 103:51.
32. Determination of urinary sampling and methanephines for Corcuff J, Chardon L, El Hajji Ridah I, Brossaud J. 5HIAA: revisit recommendations. *Endocr Connect* 2017; 6:R87.
33. Tesselaar M, Corset T, Kidd M et al. Validation of a Blood Neuroendoc rine Tumor Gene Signature, the NETest, in a Netherlands NET Cohort. *Neuroendocrinology* 2016; 103:51.
34. Modlin IM, Alaimo D, Callahan S et al. Clinical diagnostic utility of a blo od-based multi-transcriptome assay for gastroenteropancreatic disease. *Journal of Clinical On- cology* 2015;4106-4106.