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A Retrospective Analysis of Neuroendocrine Tumors in West Azarbaijan Province, Iran

Valizadeh N[1]*, Eishi Oskuie A[2], Mansori M[3]

1. Assistant professor of Hematology/Medical Oncology, Urmia University of Medical Sciences, Emam Khomeini Hospital, Urmia ,Iran.
2. Associate professor of Hematology/Medical Oncology, Urmia University of Medical Sciences, Emam Khomeini Hospital, Urmia, Iran.
3. Radiation Oncologist, Omid Charity Oncology Center, Urmia, Iran.

***Corresponding Author:** Valizadeh N, Email: nsedaha0@gmail.com*

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Abstract

Neuroendocrine tumors are most often located in the intestine and lungs but they can arise from other areas of the body. Limited data is available on epidemiology and clinical patterns of neuroendocrine tumors in Iran. We analyzed medical records of 34 patients from 2 cancer centers (Emam Khomeini hospital and Omid Charity Cancer Center) in west Azarbaijan province of Iran with neuroendocrine tumors to identify origins of the disease and the demography of the patients.

Keywords: Neuroendocrine, tumor, demography, Iran

Introduction

Neuroendocrine tumors (NETs) account for 0.5% of all cancers [1]. The annual incidence rate is about, 2.5-5 per 100,000 and the prevalence rate is 35 per 100,000 [2]. Gastrointestinal tract is the most common site for NETs. Nearly two thirds of NETs arise in the GI tract, one quarter arises from the lung, and the rest arise from other organs [1, 3]. A review of literature shows that the incidence of gastrointestinal NETs is increasing in UK, Sweden and Switzerland [4, 5, 6, 7]. There is little information regarding the incidence of NETs in the literature and there is not any epidemiologic study regarding neuroendocrine tumors (NETs) in Iran. The aim of this study was to report the most common primary sites and the metastatic pattern of these tumors in West Azarbaijan province, Iran.

Methods and Materials

In this retrospective study we analyzed medical records of 34 patients with neuroendocrine tumors, for age, sex, primary site, presence of metastasis at presentation and sites of metastasis; from 2 cancer centers (Emam Khomeini hospital and Omid Charity Cancer Center) in west Azarbaijan province of Iran.

Results

The mean age was 57.97 years (range: 25-84 years). Out of our 34 patients 15 were male and 19 patients were female. Gastrointestinal (GI) system in 15 patients (44.11%) followed by lung in six patients (17.64%), head and neck in five patients (14.70%) and lymph nodes in 2 patients (5.88%) were the most common sites of NETs. Ovary, thyroid, adrenal, thymus, retroperitoneum and unknown primary site, each were observed in 1 patient.

A subset analysis on gastro-entero-pancreatics(GEP) neuroendocrnie tumors (n=15) showed 4 from small intestine, 3 from colorectal, 2 from stomach , 2 from pancreas and 1 from esophagus, liver, spleen and gallbladder each. Of these tumors 47.05 % were metastatic and 50% did not have metastasis at presentation and 2.94% did not have adequate data in their medical records. Common metastatic sites included liver followed by bone and lungs. Lymph nodes and spleen were other sites of metastasis in this study.

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Discussion

The most common primary location for a NET in Caucasians in the USA is the lung, while rectum is the most common site in Asian/Pacific, American Indian and African–Americans.[3] In Norway, the most common primary site is the small intestine (25%).[8]

In a study conducted by Cukier, et al. from Canada, on 5619 cases, the median age was 62 with 50.5% female cases. Broncho-pulmonary NETs where the most common (22%), then jejunum/ileum (17%) and rectal (16%) NETs, while pancreatic NETs (p NETs) and gastric NETs were 10% and 5% respectively. Metastatic disease was found in 45% of patients; 20% at diagnosis and 25% during follow-up. [9] A study from Girona province, Spain, on 698 NETs, showed that the most common type were those aroused in the bronco pulmonary system (65.75%), and then the gastro-entero-pancreatics (GEP) (12.75%). [10]

A retrospective analysis on newly diagnosed NETs in Naples, Italy, on 299 NETs between 2006 and 2009 showed that 121 patients (40%) had lung NET, while 92 patients (30%) had GEP-NET. The authors found that women are more likely to have a primary NET in the lung, breast or colon while men are more likely to have a primary tumor in the lung. [11]

Another study on clinicopathological features of 773 Brazilian gastroenteropancreatic neuroendocrine tumor cases between 1997 and 2009 showed a female predominance. The most common anatomic location involved was stomach followed by small and large intestines. [12]

Conclusion

In this retrospective analysis gastrointestinal (GI) system followed by lung were the most common sites of NETs. Small intestine followed by colorectal were the most common sites of GEP neuroendocrine tumors and similar to some studies there was a female predominance. Common metastatic sites included liver followed by bone and lung.

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