

Carcinoid & Neuroendocrine Tumor Society of Singapore (CNETS) Survey on Delay in Diagnosis of Neuroendocrine Tumors

William Claxton,¹ Donald Poon²

¹Carcinoid & Neuroendocrine Tumor Society of Singapore, Singapore; ²National Cancer Centre, Singapore

Introduction

Half of patients with NET have regional or distant disease at diagnosis; 5-year survival is only 35% in patients with distant disease that is well- or moderately differentiated. Prompt diagnosis could improve outcomes by allowing treatment to begin at an earlier stage of the disease. CNETS, a patient advocacy and support group based in Singapore, conducted a survey to determine the incidence of initial misdiagnosis and the duration of delay in the diagnosis of NET. The secondary objective of the survey was to raise awareness of this diagnostic entity among patients, caregivers, and healthcare providers so that diagnostic delays will be minimized.

Methods

CNETS organized an online survey using a Web-based polling site (Doodle®). Patients with NET or their caregivers were invited to respond to the question: "From symptom onset until NET diagnosis, were you/they misdiagnosed as having irritable bowel syndrome (IBS), Crohn's disease, or another gastric disorder?" Respondents were given 4 options: (a) No misdiagnosis; (b) Yes, but it took less than 6 months; (c) Yes, and it took between 6 months and 2 years; (d) Yes, and it took more than 2 years. They were invited to give comments to clarify their responses.

Results

Between the start of the survey on 15 Feb 2010, and the latest data on 7 May 2010, there were 221 survey participants. Most respondents (125; 57%) reported a delay in correct diagnosis of more than 2 years; 35 (16%) reported a delay of more than 6 months to 2 years; 10 (5%) reported a delay of less than 6 months; 50 (23%) reported no delay. Of the 61 respondents who posted comments, 16 reported being misdiagnosed with IBS, 2 with Crohn's disease, and 3 with peptic ulcer disease. Abdominal pain was the most common presenting symptom, reported by 20 respondents; flushing was experienced by 19 respondents who commented; diarrhea was next most common, with 10 reporting it; 6 reported severe weight loss; 3 reported vomiting; 3 were told that they had a psychiatric condition.

Conclusion

The survey results show that misdiagnosis of NET is common and was delayed by more than 2 years in the majority of patients. Greater awareness of NET and its symptoms is needed among healthcare providers, patients, and caregivers.

Carcinoid & Neuroendocrine Tumor Society of Singapore (CNETS) Survey on Delay in Diagnosis of Neuroendocrine Tumors

William Claxton,¹ Donald Poon²

¹Carcinoid & Neuroendocrine Tumor Society of Singapore, Singapore; ²National Cancer Centre, Singapore

BACKGROUND

- Neuroendocrine tumors (NET) are a complex family of potentially life-threatening malignancies that can develop in various locations, including the gastrointestinal, pancreatic, and pulmonary systems¹
- Because of low incidence and nonspecific symptoms, the possibility of NET is often overlooked until mass effects or metastases are apparent²
 - The majority of NET secrete bioactive molecules, of which 50% result in symptoms including diarrhea, flushing, hypertension, bronchoconstriction, and cardiac disease³
 - Symptoms are often attributed to gastrointestinal causes such as irritable bowel syndrome,⁴ Crohn's disease, or peptic ulcer disease (gastric acid reflux)
- Prognosis is poor in patients who present with metastatic disease, according to an analysis of the US Surveillance, Epidemiology, and End Results Program registries from 1973 to 2004⁵
 - Median overall survival is 33 months for patients with well- or moderately differentiated distant metastatic NET⁵
 - Median overall survival is 5 months for patients with poorly differentiated distant metastatic NET⁵
- Outcomes might improve if NET can be diagnosed and treated at an early stage prior to metastatic spread

Carcinoid & Neuroendocrine Tumor Society of Singapore

- The Carcinoid & Neuroendocrine Tumor Society (CNETS) of Singapore is a support group whose primary purpose is to establish an online resource that spans Asia-Pacific borders to provide support for the community of patients affected by NET as well as their families, caregivers, physicians, and researchers
- CNETS conducted 2 surveys with the goal of providing information that may improve diagnosis and care for patients with NET

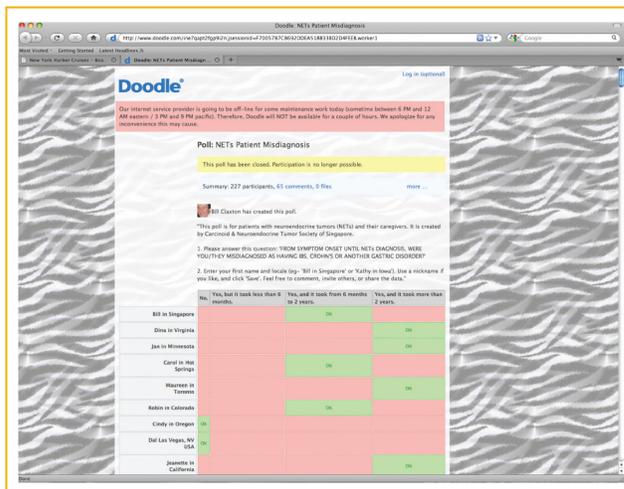
OBJECTIVES

- The primary purpose of the surveys of patients with NET was to determine incidence of initial misdiagnosis, duration of diagnostic delay, and extent of travel for care
- A secondary objective was to raise awareness of NET among patients, caregivers, and healthcare providers so that diagnostic delays will be minimized

METHODS

- CNETS organized 2 online surveys using a Web-based polling site (Doodle®; <http://www.doodle.com/>)
- Patients with NET or their caregivers were invited to respond to questions on the Web site (**Figure 1**)

Figure 1. Survey Web Site



- Survey 1 (<https://www.doodle.com/ine7qapt2fgp9i2n>)
 - “From symptom onset until NET diagnosis, were you/they misdiagnosed as having irritable bowel syndrome, Crohn's disease, or another gastric disorder?”
 - No misdiagnosis
 - Yes, but it took less than 6 months
 - Yes, and it took between 6 months and 2 years
 - Yes, and it took more than 2 years
- Survey 2 (<https://www.doodle.com/bv5uif2q8ydq23mi>)
 - “In the past 2 years, have you/they traveled out of town to seek NET-related diagnosis or treatment?”
 - No
 - No, but considering or planning such travel
 - Yes, traveled outside my state or province
 - Yes, traveled outside my country
- For both surveys, participants were invited to give comments to clarify their responses
- Responses and anecdotal comments were collated by CNETS

RESULTS

Survey 1

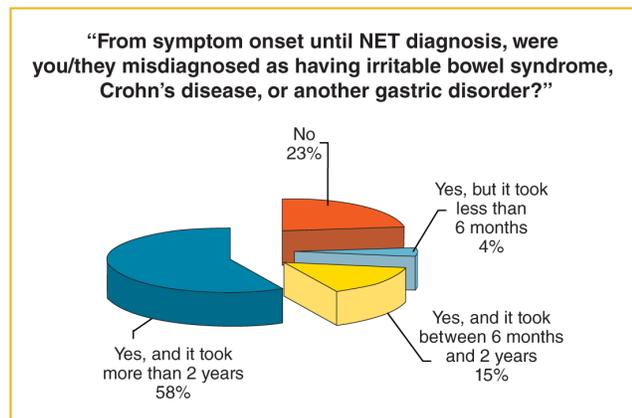
- Between the start of the survey on 15 February 2010 and the latest response on 8 August 2010, 226 participants provided input
 - Most respondents (58%) reported a delay in correct diagnosis of more than 2 years (**Figure 2**), which was the maximum permitted duration response
 - Almost one-fourth of respondents were correctly diagnosed at the time of presentation

Carcinoid & Neuroendocrine Tumor Society of Singapore (CNETS) Survey on Delay in Diagnosis of Neuroendocrine Tumors

William Claxton,¹ Donald Poon²

¹Carcinoid & Neuroendocrine Tumor Society of Singapore, Singapore; ²National Cancer Centre, Singapore

Figure 2. Length of Time From Symptom Onset to NET Diagnosis



- 64 patients (28% of all survey participants) posted additional comments
 - 51 identified themselves as living in the United States
 - 17 reported being initially misdiagnosed with irritable bowel syndrome, 2 with Crohn’s disease, and 4 with peptic ulcer disease
 - Abdominal pain and flushing were the most common presenting symptoms (**Table 1**)
 - 3 were misdiagnosed as having asthma
 - 3 were told that their symptoms were due to a psychiatric condition

Table 1. Common Presenting Symptoms Among Respondents

Presenting symptom (n, %)	Patients (n = 64)
Abdominal pain	21 (33)
Flushing	19 (30)
Diarrhea	11 (17)
Severe weight loss	6 (9)
Vomiting	4 (6)

Some participants listed multiple presenting symptoms and some listed none.

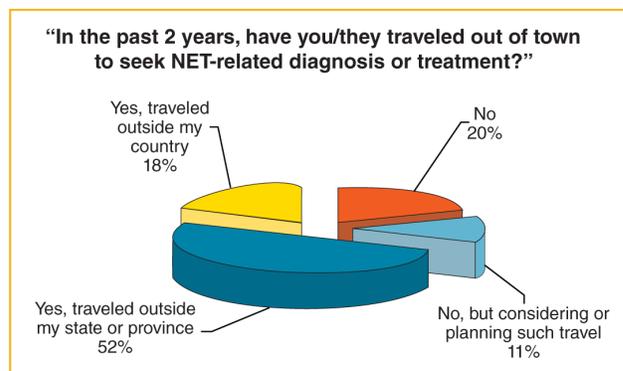
- Some respondents described difficulty in receiving proper care despite repeated examinations:

“I was hospitalized 3 times with pain in the area of my appendix. I was told that the pain was either stress related or IBS. After the third time, I was told never to come back to the hospital again for this. Eighteen months later I went to the hospital and was reminded about not coming back. They made me wait in the emergency room while they saw every other person; my appendix burst due to a goblet cell carcinoid tumor while I waited 10.5 hours for an operation. Later I had a right hemicolectomy and hysterectomy.”

Survey 2

- Of 197 patients who responded to the second survey between 5 September 2009 and 19 February 2010, more than two-thirds (69%) reported traveling outside their state or province for NET-related diagnosis or treatment (**Figure 3**)

Figure 3. Patient Travel for NET-Related Diagnosis or Treatment



- Anecdotal information provided by 41 respondents suggests that patients with NET travel to seek best available care, not to reduce costs:

“I have consulted on a regular basis with Dr. [name redacted] in New York, and now I consult with Dr. [name redacted] in Iowa at least 4 times a year (Iowa is an easier trip from Michigan; I still love Dr. [name redacted]). My local oncologist and Dr. [name redacted] are part of what I call my carcinoid team. I have also done treatments with Dr. [name redacted] in Illinois and traveled to Basel, Switzerland for two Y-90 DOTATOC treatments. I have done other treatments and surgery; I have left town for most of them.”

“I have traveled: my carcinoid doctor is ~800 miles away; I have also traveled there for surgery. I have also traveled for multiple carcinoid/NET conferences (United States and Canada), and I have traveled to Switzerland for [peptide receptor radionuclide therapy] treatments. In my opinion, if you have the resources, it would be crazy not to go to where the expertise exists.”

CONCLUSIONS

- The survey results show that misdiagnosis of NET is common and correct diagnosis was delayed by more than 2 years (the maximum response permitted) in the majority of patients
- The majority of survey respondents reported a need to travel long distances for NET-related diagnosis or treatment
- Greater awareness of NET and its symptoms, diagnosis, and treatment is needed among healthcare providers, patients, and caregivers

References

1. Jacobs C. *Clin J Oncol Nurs*. 2009;13:21–23.
2. Modlin IM et al. *Lancet Oncol*. 2008;9:61–72.
3. Barakat MT et al. *Endocr Relat Cancer*. 2004;11:1–18.
4. Vinik AI et al. *Pancreas*. 2010;39:713–734.
5. Yao JC et al. *J Clin Oncol*. 2008;26:3063–3072.

Acknowledgments

Writing, editorial assistance, and graphic support was provided by Scientific Connexions, Newtown, PA, USA, and funded by Novartis Pharmaceuticals Corporation.