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Compensation Claims for Sub-substandard Care of Patients with Gastroentero-pancreatic Neuroendocrine Tumors: A Nationwide Descriptive Study of Cases Between 2005-2016 in Norway

KARI F. DESSERUD[1], IDA BUKHOLM[2] and JON ARNE SØREIDE[1,3]

[1]*Department of Gastrointestinal Surgery, Stavanger University Hospital, Stavanger, Norway;*
[2]*The Norwegian System of Compensation to Patients (NPE), Oslo, Norway;*
[3]*Department of Clinical Medicine, University of Bergen, Bergen, Norway*

Abstract. *Background: Management of patients with neuroendocrine tumors of the gastrointestinal tract or pancreas (GEP-NENs) poses diagnostic and therapeutic challenges. This study described the medico-legal claims reported to a national governmental system that oversees compensation to patients with GEP-NENs Materials and Methods: An electronic search of the Norwegian System of Compensation to Patients database was performed to identify claims evaluated between 2005-2016. The clinical information and the medico-legal evaluation were reviewed. Results: We identified seven patients, five women and two men, with a median age of 57 (range=47-73) years. Delayed diagnosis (median diagnostic delay of 18 (range=6-48) months) was the main cause for claims in six out of the seven patients). Four patients received financial compensation based on the claim judgement. Conclusion: This review of claims that were evaluated by the Norwegian System of Compensation to Patients showed that a timely diagnosis of GEP-NENs remains a clinical challenge.*

Neuroendocrine tumors are found in a heterogeneous group of patients. In recent decades, there have been important advances both in terms of our understanding of the underlying biology of these tumors and also with regard to patient management (1). Still, these tumors are regarded as being rare, with a reported annual incidence of 4-6/100,000 for gastro-entero-pancreatic neuroendocrine tumors (GEP-NENs), although the trend is for an increasing incidence (2, 3). The clinical symptoms are often vague and non-specific (1, 4, 5), and imaging may also be challenging (6). Thus, a final diagnosis can be delayed for 5-7 years (7). This may in particular apply to patients with multiple endocrine neoplasia syndrome (MEN) (8). A multidisciplinary treatment approach is needed in most patients, and challenges remain despite guidelines that address clinical decision-making and management of these patients (9-12).

In Norway, patients who regard themselves managed by substandard treatment by the healthcare system, including an injury, are encouraged to apply for compensation to the Norwegian System of Compensation to Patients [NPE; Norsk pasientskadeerstatning (www.npe.no)] (13). In line with other Nordic countries, the Norwegian compensation system is a no-blame system, *i.e.* full compensation can be offered without anyone being proven guilty of malpractice. According to this particular legislation, compensation is given if the injury is assumed to be a result of an error or omission in treatment, and the patient must have sustained a financial loss (13).

This study investigated claims reported to the NPE by patients with GEP-NENs in the past decade (2005-2016).

Materials and Methods

The NPE. Until the late 1980s, compensation claims in Norway required the patient to prove negligent behavior by the healthcare provider or physician. The result of this high standard was that few patients submitted claims for compensation. However, in the late 1980s, it had become politically expedient to promote the prospective introduction of hospital liability, irrespective of blame or negligence.

A temporary regulation established in 1988 was succeeded by the Act on Patient Injury Compensation. This went into effect in the public health sector on January 1, 2003 and in the private health

Correspondence to: Professor Jon Arne Søreide, MD, Ph.D., FACS, Department of Gastrointestinal Surgery, Stavanger University Hospital, N- 4068 Stavanger, Norway. Mobile: +47 90531770, e-mail: jonarne.soreide@uib.no

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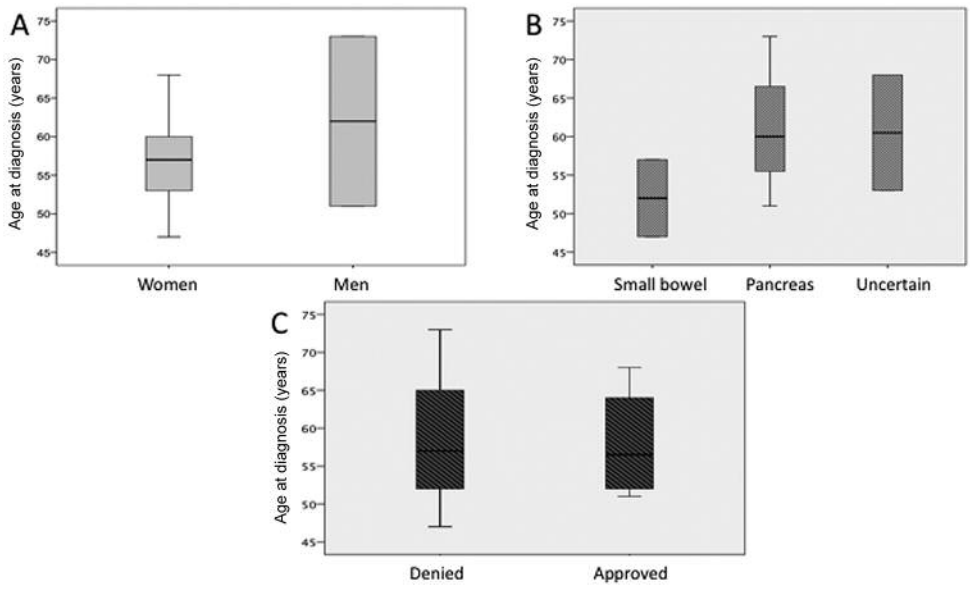

Figure 1. *Age at diagnosis according to sex (A), primary tumor location (B), and claim evaluation (C) (n=7).*

sector on January 1, 2009. The NPE, which handled the temporary regulation, became a public agency under the Department of Health and Care Services, and was given the task of handling the compensation claims. Over the past few years, some 5 000 new cases have been reported, and about the same number evaluated and a finally ruling issued. Between 29-32% of the claims were approved, and annually total financial compensation of about NOK 950 million (≈100 million €) being awarded by the government to around 1,500 patients, for an average compensation of ≈NOK 63,000/patient (≈6,600 €/patient).

Notably, there was a wide range in the compensation awarded. In order to be granted compensation, the patient injury must be found to be an error or omission in diagnosis, treatment or follow-up, and the patient must also have sustained a financial loss (13, 14).

In 2005, the NPE established an electronic database, using defined diagnostic groups, including ICD-10 diagnosis. We searched this database for GEP-NEN cases that were evaluated by the NPE between 2005-2016. It was not feasible to perform a manual search of relevant cases before 2005. The pertinent demographics, clinical and medico-legal information was retrieved from anonymous NPE cases to evaluate common characteristics and patterns. Case information was limited to anonymous specialist evaluation reports for the specific claim, including the final judgement and conclusion made by the Board of the NPE. No access to general information from hospital records or other sources with individual patient information was possible.

The study was approved by the Data Inspectorate of the NPE. (Approval number ST2017-1)

Results

Between January 2005 and December 2016, a total of eight claims were registered with the NPE by patients with GEP-NEN. However, one of the claims was not related to the diagnosis or management of GEP-NEN; rather, it was related to another malignant disease. This patient was, therefore, excluded from further evaluation.

Patients. Of the remaining seven patients, five were women and two were men. The median age was 57 (range=47-73) years, and the men were slightly older than the women (Figure 1). Cases were registered from all regions of the country. Most patients suffered clinically relevant co-morbidity.

Stage of disease and treatment provided. Except for one patient with a primary neuroendocrine pancreatic tumor (P-NET), all patients had advanced disease at the time of diagnosis. The primary tumor location was the pancreas in three patients, the small bowel in two, and was uncertain in the other two, although the primary tumor was suggested to be in the small intestine. The tumors were in general well-differentiated, with a low Ki67 index (<3%), although the single patient with advanced P-NET had a Ki67 index of 15% at the time of diagnosis (delayed). Only a single patient with a P-NET was surgically treated with a curative intent. However, another patient with advanced disease from a primary small intestinal NET underwent debulking. The remaining five patients received non-operative treatments with somatostatin analogs, various chemotherapy or targeted therapies, either alone or as combination treatment.

The claims. Each case was evaluated by at least one Board-certified specialist who had experience in clinical oncology, gastrointestinal surgery, thoracic surgery, radiology or

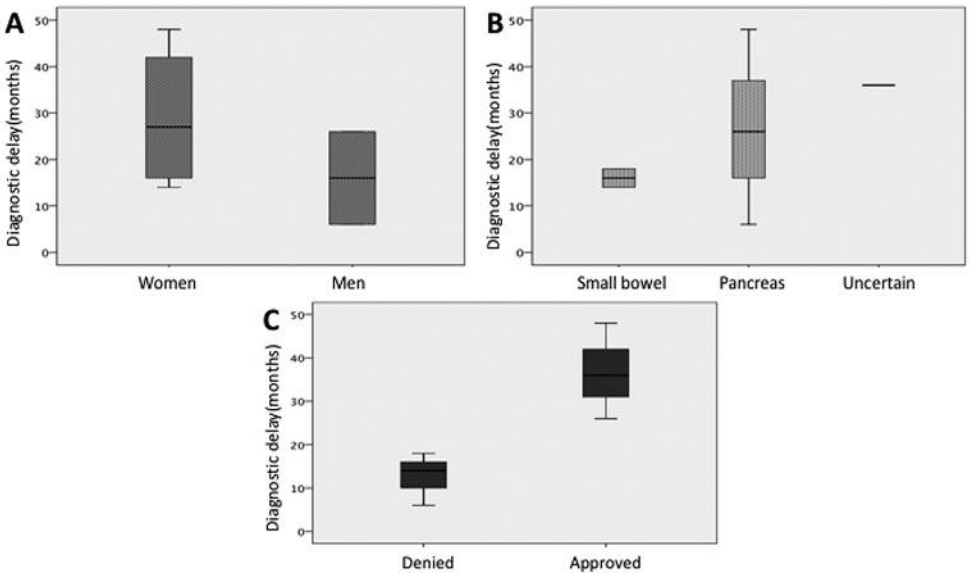

Figure 2. *Diagnostic delay according to sex (A), primary tumor location (B), and claim evaluation (C) (n=6).*

Table I. *Patient and claim characteristics according to claim evaluation. Characteristics did not differ significantly between the two groups.*

	Denied (n=3)	Approved (n=4)
Gender, M:F	1:2	1:3
Age, years*	57 (47-73)	56.5 (51-68)
Diagnostic delay, months*	14 (6-18)	36 (26-48)
Time between patient treatment and legal decision, months*	36 (15-46)	61.5 (47-85)

*Continuous variables were not normally distributed; they are reported as median (range), and were compared using the Mann-Whitney *U*-test.

gynecology as appropriate for each individual case. The evaluations were based on case-sensitive instructions from the NPE Board. Several cases underwent medico-legal evaluations by more than one specialist.

The claim cases included delayed diagnosis in six out of the seven patients, with a median diagnostic delay of 18 (range=6-48) months; 27 (range=14-48) months in women and 16 (range=6-26) months in men (Figure 2). Of seven cases, three were refused for any form of financial compensation, and the other four received compensation of between NOK 50,000-1,000,000 (median=NOK 500,000 ≈52,400 €). The time from the undesired event to a final conclusion in the cases was a median of 47 (range=15-85) months for the seven cases. This time period was shorter (median=36 months) in the rejected cases as compared to that for which a financial compensation was approved (median=72 months), but this difference was not statistically significant (Table I).

The reason for compensation included delayed diagnosis (delays of 36-48 months) in 3 patients. This delay was regarded as being important for the management in these cases. One patient was not treated according to current practice guidelines (9, 10) at the time of diagnosis, and suffered serious side-effects from inappropriate treatment with cisplatin and etoposide for several months when somatostatin analogs should have been used. Compensation was offered because the suffering related to obvious side-effects associated with use of the wrong medications, even though the prognosis of this patient was not considered as being jeopardized by the mistreatment.

When financial compensation was rejected, it was because the specialist evaluations concluded that malpractice could not be found. A 6-month delayed diagnosis in one patient with seriously advanced disease at the time of diagnosis did not support the need for any compensation because there were no financial losses. Moreover, the delay was not considered to

have affected treatment options or the outcome of this particular patient. Two patients had their final diagnosis delayed (14 and 18 months, respectively) because their vague clinical symptoms were misinterpreted as symptoms of menopause by a gynecologist, and similar symptoms were considered to be withdrawal symptoms in a psychiatric patient.

Discussion

To the best of our knowledge, there are no other reports that describe a nationwide governmental medico-legal approach to claims from patients with GEP-NENs.

Diagnostic delay was the main reason for most of these claims, which is in accordance with findings of previous study (7), and which is recognized by most of the physicians involved in the management of these patients. The rarity of patients with GEP-NEN, and the often inconsistent and vague nature of symptoms, makes symptom interpretation difficult, which again causes time delay until a correct diagnosis is made. Notably, two out of the seven patients had flushing that was misinterpreted.

There are various challenges in diagnosing and managing patients with GEP-NEN (6, 15-23). In general, patients with vague abdominal pain are seen by general practitioners as well as specialists at a hospital. It can be hard to judge whether further work-up is warranted for individual patients. Nonetheless, the fact remains that a significant proportion of patients are discharged from hospital with undiagnosed malignant disease (24). Less often, functional GEP-NENs themselves can pose obstacles in diagnosis. For example, case reports describe the following: an insulinoma that was encountered in pregnancy (25); an epilepsy misdiagnosis that was not corrected for several years (26); a pancreatic tumor that caused hypoglycemic syndrome without hyperinsulinemia (27); and a pancreatic somatostatinoma presenting with severe hypoglycemia (22). The increasing number of patients eventually admitted to hospital for various symptoms and complaints after previous surgery for obesity presents novel diagnostic challenges, and misdiagnosis of a carcinoid syndrome as a malabsorptive syndrome has been reported (28). Inappropriate biopsy of or an immediate operative approach to an adrenal tumor or suspicious retroperitoneal masses without biochemical testing can be dangerous in the case of a catecholamine-secreting neoplasm (29). Further more, gastrinomas are rare NETs, and although elevation of serum gastrin is common, hypergastrinemia may be explained by other causes (*e.g.* use of proton pump inhibitor), that make it difficult to arrive at a correct diagnosis (5). Chromogranin A (CgA) is a widely used biomarker for NETs (10). As a single factor, elevation of CgA is not diagnostic of GEP-NEN. But in the diagnostic work-up, this circulating marker may add to the diagnostic picture, although the interpretation of elevation is not always straight-forward (30, 31).

There are several possible pitfalls regarding timely diagnosis and proper treatment of GEP-NENs. Diagnostic delay was the main cause of claim in this series, and is in general suggested to be a major cause (7). However, in a setting with other criteria for legal actions [*i.e.* general claims to the Nation Board of Health Supervision (Statens helsetilsyn)] the number and causes of claims and legal processes might be different.

This study was limited by its small size (seven patients), and by the fact that the Authors had limited access to patient information (*i.e.* only the experts' evaluation reports, and the conclusion made of the NPE were used; there were no access to detailed information from hospital records or other sources). Therefore, no detailed comparisons were made between patients, and general conclusions could not be drawn. More over, our intention was not to evaluate the appraisals made by our fellow physicians or the NPE board. Rather, we aimed to describe the number of claims by patients with GEP-NEN in the NPE database, and determine whether any particular patterns emerged from review of those cases. During the same time period, there might have been other cases that were reported directly to the governmental National Board of Health Supervision (Statens helsetilsyn) or that were involved in civil court processes. While this limits a broader view of this topic, the information provided in this study nevertheless adds to the discussion of the management of patients with GEP-NENs.

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