

Title

Metachronous Primary Cancers in Neuroendocrine Tumour Patients

Abstract

Introduction

Historically there has been an association with neuroendocrine tumours (NETs) and other cancers (Stronge *et al* 2014). However, this has not previously been well characterised. We aimed to determine the incidence of second malignancies in patients with NETs and investigate any association of the anatomical site of NETs with other malignancies.

Materials and methods

12,844 patients were diagnosed with a NET between 2013 and 2015 and captured by the National Cancer Registration and Analysis Service (NCRAS). A count of tumours per person, and the most common sites for second malignancies was made. The relative risk of future site-specific NETs after non-neuroendocrine cancer was investigated.

Results

Of the 12,844 people in the analysis, 2,805 (21.8%) had at least one NET or non-NET, metachronous or synchronous cancer comprising: 2,311 patients with 2 cancers; 424 with 3 cancers; 61 with 4 cancers; 7 with 5 cancers; and 2 with 6 cancers. The most common sites for metachronous cancer primaries were prostate (14.4%), breast (13.4%), non-melanoma skin cancer (12.0%), colon (11.4%), lung (5.5%), lymphoma (4.7%), kidney (3.8%), melanoma (3.4%), bladder (3.4%), rectum (3.3%), ovary (2.4%), endometrium (2.4%), leukaemia (2.0%), stomach (1.3%), thyroid gland (1.3%) and pancreas (1.1%).

Eighty-one percent of patients had a second primary pre-NET diagnosis, 12% had a second primary post-NET diagnosis and 7% had a synchronous second primary.

For males who had previously been diagnosed with prostate cancer the risk of site-specific NETs were as follows: bladder NET (RR 1.86 [CI: 1.33-2.62]); rectal NET (RR 1.47 [CI: 0.98-2.21]); pancreatic NET (RR 0.99 [CI: 0.73-1.36]); and small intestinal NET (RR 1.08 [CI: 0.84-1.36]).

Conclusion

Based on a large national cancer registry, most patients with NETs who presented with second cancers had pre-NET non-neuroendocrine primary cancers. This study identified prostate cancer as the most common site in male NET patients, and a possible association between prostate cancer and bladder neuroendocrine cancer needs further exploration.

Keywords: Neuroendocrine cancer, second primary, metachronous cancers, synchronous cancers