Adenocarcinoma the most common cell type in patients presenting with primary lung cancer in the Western Cape

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To the Editor: Lung cancer is the most common cause of cancer-related mortality worldwide for men and women, causing approximately 1.2 million deaths per year.[1] The absolute and relative frequencies of lung cancer have risen dramatically[1] and in South Africa account for 17% of all cancer deaths.[2] We found that adenocarcinoma is now the most common histological subtype of primary lung cancer diagnosed in the Western Cape and that almost 90% of all patients with non-small cell lung cancer have advanced local or metastatic disease at the time of diagnosis.

'Lung cancer' denotes cancer arising in the airways and pulmonary parenchyma. Its histopathological designation is based on the World Health Organization classification system, with 4 cell types responsible for most deaths: adenocarcinoma (including bronchoalveolar carcinoma), squamous cell carcinoma, large cell (undifferentiated) carcinoma and small cell carcinoma.[3] Carcinoid tumours and other rare cell types complete the list of cell types. An interesting phenomenon in the developed world over the last two decades has been the relative increase in the diagnosis of adenocarcinoma which has replaced squamous cell carcinoma as the most frequent histological subtype.[4] Many explanations for this well-documented phenomenon have been suggested.

There are few current South African data regarding the relative incidence of the various cell types. The latest National Cancer Registry (NCR) report is from 2001, and contains no data on the relative incidence of the lung cancer cell types.[5] Moreover, published and unpublished data from the 1980s suggested that more than 50 - 60% of all lung cancers were squamous cell carcinomas.[6] As we found no published study over the last two decades that addresses this issue, we report the relative figures for a two-year period observed in a tertiary referral centre in Cape Town. We postulate that adenocarcinoma could be the most frequently observed variant, and provide an overview of the staging of all the cases of non-small cell and small cell lung cancer patients included.

We used our local lung cancer registry that is updated weekly during a combined multidisciplinary oncology meeting at Tygerberg Academic Hospital to identify all cases of primary lung cancer presented from January 2008 - December 2009 for potential curative or palliative treatment. We retrospectively collected data on all patients who had a tissue diagnosis of primary lung cancer and who underwent at least a staging computed tomography (CT) scan as per hospital protocol. Lung cancer was staged according to the 2002 Union Internationale Contre le Cancer staging system at the time of the study. The Health Research Ethics Committee of Stellenbosch University approved the study (project number N10/03/096) and the Chief Medical Superintendent of Tygerberg Academic Hospital gave permission for the anonymous collection of data.

We identified 507 cases (patient ages 59.7 ±10.4 years, 323 male) of primary lung cancer that fulfilled the inclusion criteria; 430 (84.8%) had non-small cell lung cancer, and the relative contributions were: adenocarcinoma 215 (42.4%), squamous cell carcinoma 113 (22.3%), large cell carcinoma 98 (19.3%) and bronchoalveolar carcinoma 4 (0.8%). Additionally, 63 (12.4%) had small cell lung cancer, and 14 (2.8%) were diagnosed with other forms of lung cancer.

Only 28 patients had early stage non-small cell lung cancer (stages I (*N*=13) and II (*N*=15)); 19 were staged as IIIA and 81 as IIIB, respectively. Most patients (302, 69.9%) with non-small cell lung cancer had metastatic disease (stage IV) at the outset. Among the patients with small cell lung cancer, 12 had limited disease while 51 had extensive disease.

We believe that this is the first study providing evidence from South Africa that adenocarcinoma has overtaken squamous cell carcinoma as the most frequently diagnosed subtype of primary lung cancer. We also found that 89.1% of patients with non-small cell lung cancer had advanced disease at presentation (stage IIIB or stage IV disease).

Although South Africa has lagged in the shift from squamous cell carcinoma to adenocarcinoma, the explanation for the shift is probably the same as that suggested for Europe and the United States. Implicated factors include technical aspects (e.g. the routine use of immunohistochemistry or immunocytochemistry in practically all cases) and smoking-related explanations (e.g. decrease in nicotine and tar delivery of cigarettes with compensatory deeper inhalation, composition of cigarette tobacco blends, and use of filter tips).[7-9]

There are limitations in our study. Apart from its retrospective nature, our institution provides a tertiary service to a population of approximately 1.5 million, comprising coloureds (52.3%), blacks (27.9%), and whites (18.2%), that may not be representative of South Africa as a whole, and it is unclear whether our findings can be extrapolated to rural southern Africa. Similar studies from other areas as well as an updated national registry are urgently needed.

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