Lung cancer diagnosis in the emergency department

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Emergency departments must be aware that lung cancer patients are a major component of their population http://ow.ly/EanYK

Lung cancer is the leading cause of cancer death worldwide, both in men and women, with an estimated incidence of 1.3 million cases per year. Active, but also passive, smoking represents the main risk factor for developing lung cancer. Smoking also causes other major health complications that could lead the smoker, whether they have cancer or not, to the emergency department (acute exacerbations of chronic obstructive pulmonary disease, acute coronary events, *etc.*). Regardless of smoking, cancer patients require emergency visits with high frequency, at equal rates for complications related to the cancer itself (neoplastic involvement of specific organs, cancer-related immunosuppression, *etc.*) and its treatment (haematological events, stomatitis, chemotherapy-related vomiting, *etc.*), and for cancer-unrelated problems. This setting was summarised in a systematic review including only six prospective series from the 18 selected, which generally were of limited size (median 143 patients) [1]. A few other works have confirmed that lung cancer patients are a major component of those people consulting at the emergency department [2–4]. In a Belgian cancer hospital, we previously noted that 8% of all consultations in this context were lung cancer patients [5]. It was also noted that up to 40% of the patients with lung cancer will present to the emergency department at least once during the course of their disease [5].

In this issue of the *European Respiratory Journal*, a unicentric, Japanese study by Fujimoto *et al.* [6] reports, in a large series of 771 patients, their experience on initial consultation at the emergency department, which lead to the diagnosis of lung cancer in 13% of the cases. Based on the available data, it is not surprising that an impressive number of patients would be diagnosed with lung cancer after consulting for a symptomatic disease.

Can we extrapolate the results from this Japanese study to our routine practice in Europe? As was recognised in a few studies, East-Asian patients have different physiopathology to Caucasians, for example, when exposing lung cancer patients to camptothecin derivatives, whether considering effectiveness or toxicity in thoracic oncology. Another difference between Asian and Caucasian patients is in the incidence of epidermal growth factor receptor (EGFR)-activating mutations, which are present in ∼10% of "Caucasian" adenocarcinomas but can reach up to 30–40% in "East-Asian" adenocarcinomas. As *EGFR* mutation is not only a predictive factor of EGFR tyrosine kinase inhibitor efficacy [7, 8] but is also a prognostic factor for survival, this could have some impact on the generalisability of the results of the study by Fujimoto *et al.* [6] outside East Asia. Furthermore, as already emphasised by the authors, their data could have been influenced by the nature of the healthcare systems. In Japan, patients suspected of having lung cancer can directly contact the respiratory physician. In the UK, patients have to be referred by the general practitioner to the specialist. This can cause a longer delay before diagnosis and, consequently, as lung cancer is a rapidly evolving disease, more symptoms requiring visits to the emergency room. In a first study by Beckett *et al.* [9], 19% of the lung cancer patients were diagnosed

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after an emergency visit; in this particular context, a low socioeconomic status was associated with lung cancer diagnosis at emergency ward. In a second study including various types of cancer [10], 39% of lung cancer diagnoses were settled after the emergency consultation. Unlike the present study, the prognosis was poorer for those patients than for the whole population (1-year survival of 12% *versus* 29%). We are clearly lacking comparative data from other countries with health systems allowing patients to choose their physician directly as in Belgium or France.

Are there symptoms that could alert the physicians in charge of emergency departments that a patient will present with a lung cancer? In the present study, the main reasons for consulting were neurological complaints (23%), pleural effusions (16%) and pneumonia (15%). This is similar to what we observed in our retrospective study [5]. In a cohort of 269 patients representing 548 consultations, the main reasons for consultation were respiratory symptoms (22.3%), fever (19.9%) and neurological problems (14.2%). In another Japanese series, respiratory symptoms (31.5%) and neurological events (11.2%) represented the first and the third reason for emergency consultation [11]. It could be suggested that smokers presenting to the emergency department with respiratory complaints or neurological complications should be checked for lung cancer.

Do these cancers diagnosed during or near after the emergency visit differ from those diagnosed during a conventional work-up? The present series reports the main clinical characteristics of prognostic value for survival that were not reported as such in two UK studies [9, 10]. However, the authors found that the prognosis of the patients was not influenced by the emergency visit but by the performance status at the time of chemotherapy administration, the *EGFR* mutational status, the absence of metastasis (stage IIIB), the histotype (adenocarcinoma) and the administration of an anticancer treatment (chemotherapy). As expected, 10% of the patients required intensive care. This is similar to what we noted previously, 13% of lung cancer patients consulting the emergency department being further transferred to the intensive care unit [5]. Even if the prognosis of those patients is dismal, mainly when requiring mechanical ventilation and/or vasopressors, 23% of them survived for >6 months. Unfortunately, we do not have information on chemotherapy administration in this subgroup of patients. In another study, two-thirds of the patients discharged from the intensive care unit received effective therapy for their lung cancer [12]. In this context, the authors underlined the importance of supportive care for improving general condition after the emergency visit.

Physicians in charge of emergency departments must be aware that lung cancer patients are a major component of their population, whether for initial diagnosis or during the course of their disease. As thoracic oncology is rapidly evolving and complexifying, a multidisciplinary approach to these patients is of particular importance, including physicians from the emergency and intensive care departments as well as (pneumo)oncologists. In this way, this multidisciplinary approach is emphasised in the thoracic oncology HERMES (Harmonised Education in Respiratory Medicine for European Specialists) programme led by the European Respiratory Society [13].

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