Research Article

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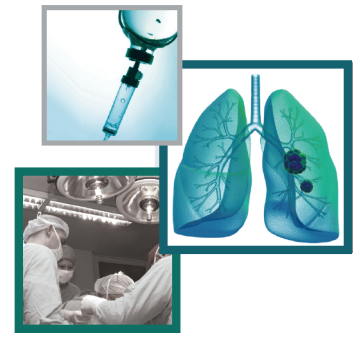
Lung Cancer Management



PET/CT and brain MRI role in staging NSCLC: prospective assessment of the accuracy, reliability and cost–effectiveness

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Aim: To determine whether PET/CT and brain MRI used in staging NSCLC can be accurate, reliable and cost-effective tools. NSCLC represents 80–85% of lung cancer and adequate information on the initial tumor staging is critical for planning an optimal therapeutic strategy. **Patients & methods:** Data from 30 newly diagnosed NSCLC patients in Greece were collected and prospectively recorded. Patients with potential resectable disease were evaluated to ensure that there are no detectable metastases that would rule out the possibility of a curative surgery. **Results:** Divergence occurred in 50% of cases of staging with CT or PET/CT alone, while metastases undetectable by the CT were revealed using PET/CT. Unnecessary thoracotomies were avoided by 10% of patients and another 10% was operated on after chemotherapy with a better prognosis. **Conclusion:** PET/CT and brain MRI combined are reliable for correct staging, reducing avoidable thoracotomies, morbidity rates and costs.

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Lung cancer

Lung cancer is a major health problem worldwide accounting for 13% of all cancer cases and causing over 1.5 million deaths per year, as shown in GLOBOCAN PROJECT 2012 by the International Agency for Research on Cancer of WHO [1]. In Europe, lung cancer is third in cancer incidence (12%) and it is the number one cause of deaths with over 20% of all cancer mortality [1]. In Greece, lung cancer is the first in both new incidents and deaths per year and it grows at an almost 10% rate as the future burden of lung cancer is estimated for 2020 [1].

Lung cancer is mainly differentiated into small-cell lung cancer (SCLC), accounting for 10–15% of all cases, and non-small-cell lung cancer (NSCLC), accounting for about 80–85% of all cases [2]. Almost 60% of NSCLC is adenocarcinoma and occurs mainly in current or former smokers, but it is also the most common type of lung cancer seen in nonsmokers. Squamous-cell lung cancer accounts for about 30% of NSCLC and is more strongly associated with smoking [3].

Diagnosis

Initial diagnosis of each NSCLC patient should be performed by a multidisciplinary medical team who will assess the patient's diagnostic tests, plan the optimal treatment and ultimately improve the quality of the prognosis [4].

An appropriate differentiation between patients with potentially curable disease and those with palliative therapy is therefore of utmost importance. For the most advantageous management of each case, precise information about the initial tumor staging is mandatory. If cancer is diagnosed at an early stage, the treatment of choice usually includes complete resection of the tumor. However, if the tumor has already reached distant organs, a cure is usually not possible.

CT scans show the size, shape and position of any lung tumor and can detect unfiltered lymph nodes with cancer cells [2]. Although CT is considered the conventional way used (CWU) for NSCLC staging, PET/CT is becoming

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