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Clinical Image
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Immunoscintigraphy with ^{99m}tc-Nimotuzumab in Patients with Non Small Cell Lung Cancer that will Receive Therapy with the Monoclonal Antibody

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Clinical Image

The NSCLC is the most common type of lung cancer and is highly lethal [1]. The application of new therapies is in constant investigation [2,3]. Targeted drugs, as well as immunotherapies, are beginning to change the treatment prognosis for people with advanced NSCLC. Research efforts are

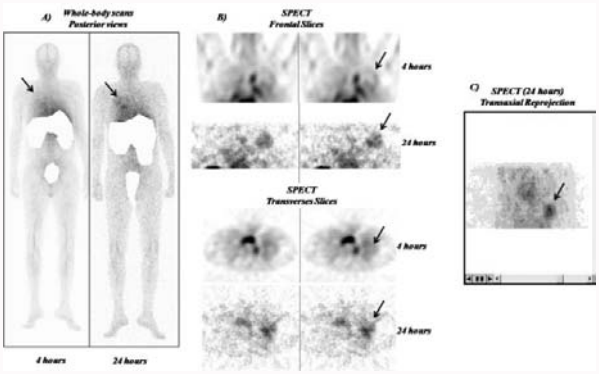

Figure 1: A 59-years-old man, smoker, needle biopsy reported a NSCLC (type adenocarcinoma). Immunoscintigraphy: (A) Whole-body scans, posterior views, 4 and 24 hours after the intravenous administration of 1110 MBq (30-mCi) of ^{99m}Tc-labeled-Nimotuzumab., show intense uptake of the monoclonal antibody in left upper lobe of the lung, suggesting the expression of receptors. (B) SPECT of thorax (Frontal slices and transverses slices), show the uptake of the radioimmunoconjugate in tumor at 4 hours, which is more evident at 24 hours. (C) SPECT of thorax (transaxial reprojetion): Detects accurately, antibody uptake and the anatomical localization of the lung tumor.

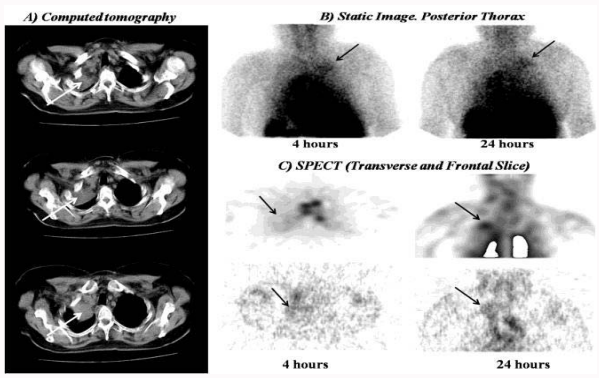

Figure 2: A 60-years-old woman, needle biopsy reported a NSCLC (type adenocarcinoma). After of receive the first line of specific oncology treatment (chemotherapy), the patient was referred for immunotherapy. (A) Computed tomography: Axial views, show nodule with irregular margins in upper lobe of right lung. (B) Immunoscintigraphy**:** (Static image, posterior thorax): The acquired images 4 and 24 hours after the intravenous administration of 1110 MBq (30-mCi) of ^{99m}Tc-labeled-Nimotuzumab, show a focal and intense uptake of monoclonal antibody in the upper lobe of the right lung. (C) Immunoscintigraphy: (SPECT of thorax, transverse and frontal slices): The images confirm the lesion with expression of specific antigens for the monoclonal antibody and helped to delimit between the heart area and the lung tumor.

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currently focusing on tailoring such therapies according to predictive clinical and molecular markers (Figure 1) [4]. Nimotuzumab is a humanized IgG1 monoclonal antibody directed against epidermal growth factor receptor (EGFr) that has been evaluated in solid tumors [3,5-7]. Some researchers have explored the effect of the monoclonal antibody that block the EGFr from the perspective of the oncogenic addiction. The addiction to the epidermal growth factor is observed in the patients that show an over expression of one receptor and a clinical answer to the antibody humanized Nimotuzumab [8] (Figure 2). The selection of patients that carry tumors with addiction to the EGF is crucial to maximize the clinical benefit of this immunotherapy [8].

References

1. American Cancer Society. Cancer Facts & Figures 2016. American Cancer Society.
2. Quián YP, Crombet T, Batista JF, Prats A, Perera A. Immunoscintigraphy with ^{99m}Tc-Nimotuzumab for planning immunotherapy in patients with bone metastases due to Prostate cancer. Clin Nucl Med. 2016; 41(3):244-6.
3. Cetina L, Crombet T, Jiménez-Lima R, Sergio Zapata, Mayra Ramos, Sandra Avila, et al. A pilot study of nimotuzumab plus single agent chemotherapy as second- or third-line treatment or more in patients with recurrent, persistent or metastatic cervical cancer. Cancer Biol Ther. 2015;24:684-9.
4. Gettinger S. Targeted therapy in advanced non-small-cell lung cancer. Semin Respir Crit Care Med. 2008; 29(3):291-301.
5. Solomon M, Miranda N, Jorrín E, Ivonne Chon, Jorge Juan Marinello, José Alert, et al. Nimotuzumab in combination with radiotherapy in high grade glioma patients: A single institution experience. Cancer Biol Ther. 2014;15:12-7.
6. Peña Y, Perera A, Batista F. Immunoscintigraphy and Radioimmunotherapy in Cuba: Experiences with Labeled Monoclonal Antibodies for Cancer Diagnosis and Treatment (1993–2013). MEDICC Rev. 2014;16:55-60.