

A semi-automatic guide system for interventional radiology procedures of the lung

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Background: to assess the clinical benefit of a robotic system while performing bioptical procedures on the lung (SIRIO). The system through an infrared sensor can indicate patient and needle position and their movements in the space.

Methods: between August 2009 and December 2010, 198 consecutive patients were enrolled. Including criteria were lesions >1cm, distant from vital anatomical structures (cardiovascular and respiratory), needing a histological assessment in patients with good performance status. Patients were randomly assigned to group A (129, SIRIO technique) and group B (69, STANDARD technique). Technical success, number of CT scans, dose absorption by the patients and time procedure length were evaluated in both groups. The *t Student* test was performed. A *p* value less than 0.05 was interpreted as statistically significant.

Results: technical success was always obtained. Scans number was 3.4+/-1.5 for SIRIO vs 6+/-4 for STANDARD technique. The mean dose of ionizing radiation administered to the patient was 34mGy for SIRIO vs 61mGy for the STANDARD technique. Time procedure length was 14+/-7minutes for SIRIO vs 25+/-12 minutes for traditional biopsies. For these data the *p* value was less than 0.05.

Conclusions: SIRIO resulted in a reduced number of CT scans to reach the target lesion thus, minimize procedure length time and ionizing radiation absorption.