

**ADVANCED DIFFERENTIATED AND POORLY DIFFERENTIATED THYROID CANCER MONITORING UNDER SORAFENIB THERAPY WITH 18F-FLUORODEOXYGLUCOSE POSITRON EMISSION TOMOGRAPHY. A SINGLE CENTER STUDY.**

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**Background/Purpose:** Biological drugs are now an increasing important therapeutic option in thyroid cancer. Sorafenib has already been tested in several studies, showing a good clinical response. 18F-Fluorodeoxyglucose (18FDG) positron emission tomography (PET) could be a new tool to assess the evolution of the disease through the analysis of the variation of its metabolic activity. No trial available has never correlated the disease evolution by means of PET with the patient's prognosis.

**Methods:** We started sorafenib therapy in 14 patients with anaplastic (n=2) and advanced (n=12) differentiated thyroid cancers. The primary objectives of the study was to evaluate metabolic activity of disease by PET, tumor radiologic reduction (RR) by CT and decrease of cancers markers.

**Results:** The reductions of metabolic activity of target lesions was significantly correlated in the first six months with RR and with cancer markers decrease. In the first part of treatment (12-15 weeks) a 50% people of RR in CT was obtained (8% PR + 42% SD) associated with a significant response of the cancer markers in 90% (70% PR + 20% SD) of subjects. The median OS was 7 months, and the median PFS was 3 months.

**Discussion & Conclusion:** Sorafenib is effective in reducing the progression of disease in the early stages of treatment. Analyzing the PET data, the study showed a partial response to therapy in 3 subjects in the first 6 months. The correlation between the oncology marker decrease and metabolic activity by PET is critical in the state that PET has an important role in the follow-up of this cancer.