

THE EVALUATION OF SEX HORMONE RECEPTORS IN PAPILLARY THYROID CANCER AS AN ADDITIONAL TOOL IN THE POST-OPERATIVE RISK STRATIFICATION AND IN THE PRE-GRAVIDIC COUNSELLING OF WOMEN WITH PERSISTENT DISEASE

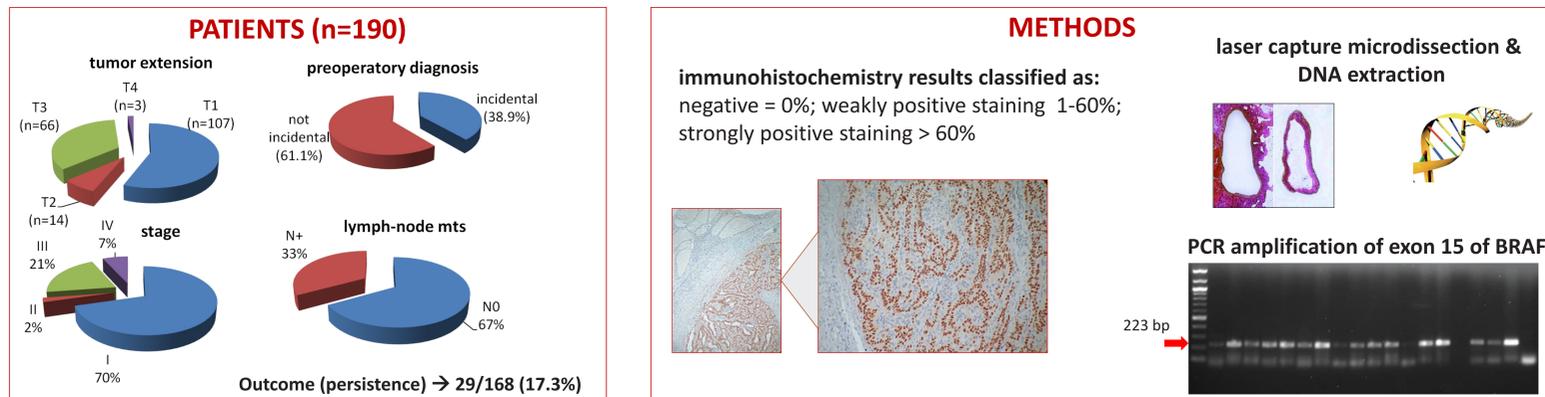
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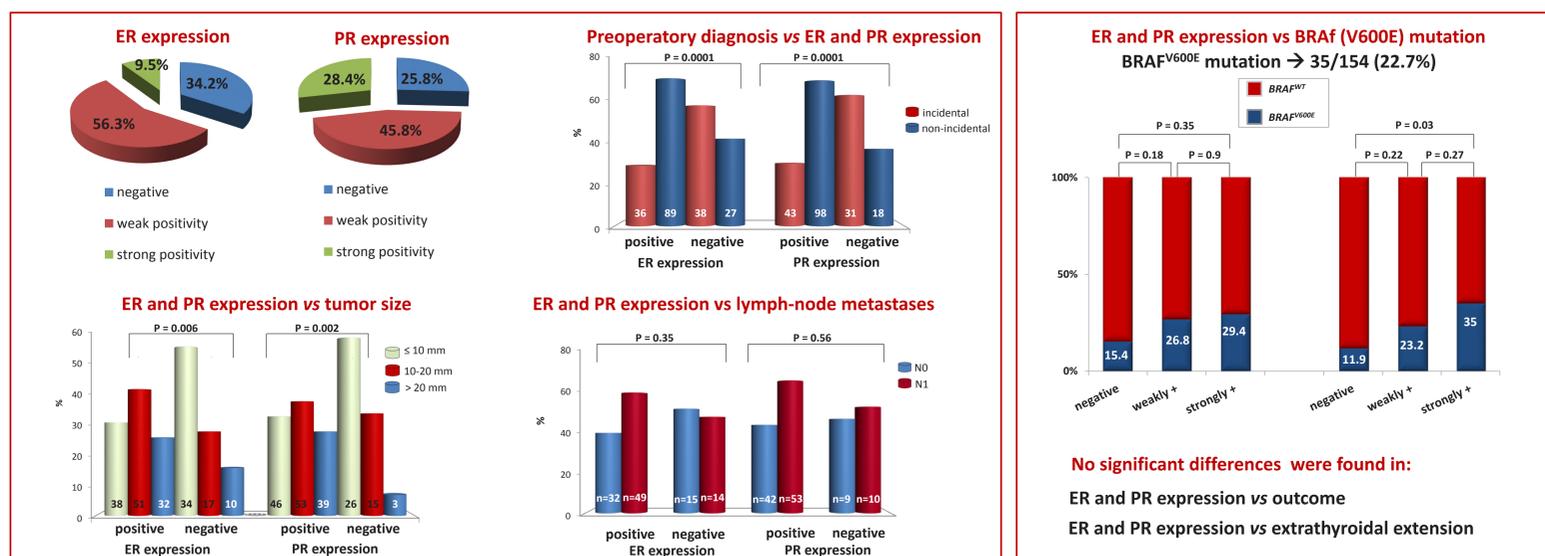
INTRODUCTION & AIM

Role of sex hormones in the pathogenesis and development of thyroid tumors: thyroid cancer are about 2,7 fold times more frequently diagnosed in the reproductive age women compared to similar aged men (Davies et al, 2006); recent pregnancy associated with a doubling in thyroid cancer risk (Rossing et al, 2000). **ER α and ER β have opposite actions on cell survival and proliferation:** ER α = proliferative and antiapoptotic effect; ER β = differentiative and pro-apoptotic effect

Aim of the study was to analyse estrogen and progesterone receptors expression in differentiated thyroid cancer and to correlate it with clinical and molecular features (BRA F^{V600E})

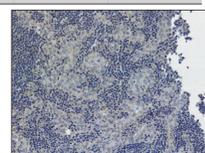
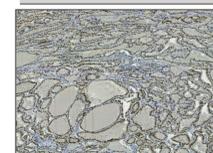


RESULTS



The phenomenon of "receptor conversion" between primary differentiated thyroid tumor and metastatic lesion in 7 cases of primary papillary thyroid cancer and lymph-node metastases (LN)

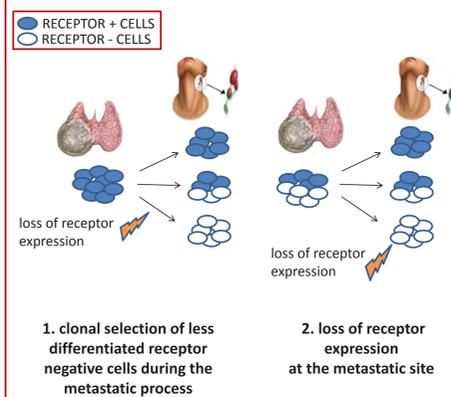
	ER α tumor	ER α LN	PR tumor	PR LN
#1	+	-	+	+
#2	+	-	+	+
#3	-	+	+	-
#4	+	-	+	+
#5	+	-	+	+
#6	-	-	+	+
#7	+	-	+	+



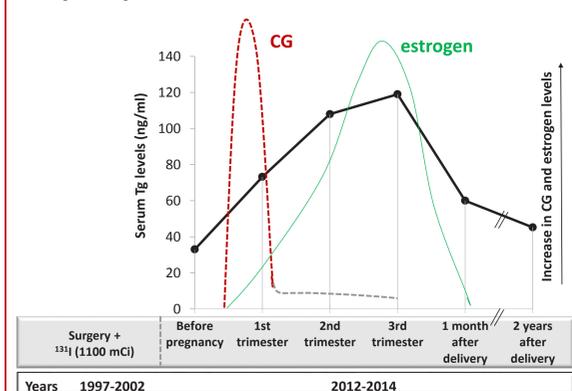
ER α positive staining in a thyroid tumor tissue ER α negative staining in a neck LN metastasis

receptor conversion

receptor status may differ from primary tumor for 2 main reasons



Serum thyroglobulin (Tg) levels in a female patient with persistent papillary thyroid cancer during the 3 trimesters of pregnancy and after delivery. Exemplificative hCG and estrogen trends during the normal singleton pregnancy are also shown. The most relevant increase of Tg occurred in the second and third trimester of pregnancy, paralleling estrogen increase, indicating an estrogen rather than a CG effect



DISCUSSION

ER α and PR are frequently expressed in DTC (65.8% and 74.2% respectively); their expression correlates with larger tumor size and, consistently, with a non-incidental diagnosis. Moreover, a trend towards a higher prevalence of local metastases and a higher prevalence of BRA F^{V600E} mutations was observed in ER α and PR expressing tumors, possibly indicating a more aggressive behavior. Although no impact on the outcome of the disease was observed, the evaluation of sex hormones receptors could add insights into the biological behavior of the tumor, and could modify the follow up particularly in fertile women with persistent disease. In addition, the phenomenon of **receptor conversion** which has been reported in thyroid tumors for the first time, could represent another issue to consider in the follow-up, and needs further studies in order to understand its effect on thyroid tumor prognosis. Finally, the finding of a strong expression of ER in some thyroid tumors suggests the need to evaluate the possible usefulness of an **anti-estrogen therapy** in selected cases to attenuate the growth-promoting effects of estradiol.

