SUMMARY AND CONCLUSION

Thyroid nodules are a common finding in general population living in iodine sufficient areas; their prevalence dramatically increasing in areas of iodine deficiency ***(Belfiore et al; 1995)***.

The great majority of thyroid nodules are benign nodules, less than 5% of them being malignant (carcinoma) ***(Rago et al; 1998)***.

While cytological examination of fine needle aspirate due to its high sensitivity and specificity is the best single test for discriminating malignant thyroid nodules ***(Gharib; 1994)***

Several studies have been performed to establish the ability of thyroid ultrasonography to differentiate benign from malignant thyroid nodules. Indeed, compared with FNAC, thyroid US has the advantage of being a non invasive procedure and giving immediate information ***(Rago et al; 1998)***.

FNA biopsy can be used to distinguish thyroid nodules that might have a higher risk of malignancy (i.e., neoplasms), and would thus require surgical excision, from goitrous nodules or thyroiditis, which can be managed medically.

The absence of halo surrounding the nodule was the pattern most predictive for malignancy on conventional US. This sign was found in 66.6% CA and in 23% BN. The sensitivity (66.6%) and specificity (77.0%) of this sign was higher than in other reports.

The finding of intranodular microcalcifications had lower sensitivity (33.4%) and specificity (75%) than the absence of halo sign, similar to that has been observed by other authors.

A hypoechoic aspect was found in 66.6% CA and in 51.3% BN, in agreement with the observations of ***Solbiati et al.and Takashima et al.***

Hypoechogenicity, absence of halo sign and microcalcifications have already been reported as single patterns suggestive of malignant thyroid nodules in previous studies.

A solid nodule, with a hypoechoic aspect and irregular borders was regarded CA in most of the reports that considered also combinations of several patterns.

In the present investigation all thyroid nodules were included, and the predictive value of two or more combined echographic patterns was evaluated. We found that the most predictive combination on conventional US was absence of halo sign plus microcalcfiications. This combination had a high specificity (93.2%), but a low sensitivity (33.4%). The predictive value of other combinations was even lower.

Intranodular blood flow on CFD was found in 66.6% of carcinomas and in 50% of BN. Thus the predictive value of CFD alone was poor, in agreement with data reported by ***Fobbe et al. and Solbiati et al.***

Other authors suggested that carcinoma and autonomous adenoma can be excluded in patients with nodular goiter when normal vascularization is demonstrated.

In this series, we evaluated the combination of each pattern on conventional US with an intranodular blood flow on CFD. Absence of halo sign plus microcalcification on US combined with intranodular blood flow on CFD was found to be highly specific for malignancy, being seen in only 1/44 BN. Unfortunately it was present in only 1/6 carcinomas. Thus, the gain in specificity (97.7%) occurred at the expense of sensitivity.

In conclusion, finding on US and CFD become highly predictive for malignancy only when multiple signs are simultaneously present in a thyroid nodule. However, the predictive value of these techniques increases at the expense of their sensitivity.