

# Neonatal hyperthyroidism: our centre's experience

Vigone Maria Cristina<sup>1</sup>, Vincenzi Gaia<sup>1</sup>, Caiulo Silvana<sup>1</sup>, Di Frenna Marianna<sup>1</sup>, Saracco Luca<sup>1</sup>, Valeria Cecchetti<sup>2</sup>, Mosca Fabio<sup>2</sup>, Barera Graziano<sup>1</sup>, Weber Giovanna<sup>1</sup>

<sup>1</sup> Vita-Salute San Raffaele University, Paediatric Department San Raffaele Hospital, Milan, Italy

<sup>2</sup> Fondazione I.R.C.C.S. Ca Granda Ospedale Maggiore Policlinico, Neonatal Intensive Care Unit, Department of Clinical Science and Community Health, University of Milan, Italy

## Objective

Neonatal hyperthyroidism is a severe but generally transient condition with a 2% prevalence in offspring of mothers affected by Graves' disease. It is caused by the transplacental passage of maternal anti-thyrotropin receptor stimulant antibodies (TRABs). Here we report the cases diagnosed at our centre between 2015-2019 in order to re-evaluate the diagnostic and therapeutic approach to this challenging neonatal thyroid alteration.

## Methods

The study was conducted on a cohort of twenty newborns diagnosed with neonatal hyperthyroidism. All had mothers who were or had been affected by Graves disease. We collected the records of the maternal disease and treatment during pregnancy along with data regarding the birth, diagnosis, and treatment of the newborn.

## Results

20 newborns (2 couples of twins) of mothers affected by Graves' disease

3 newborns of mothers that underwent **THYROIDECTOMY** (substitutive L-T4 treatment during pregnancy)

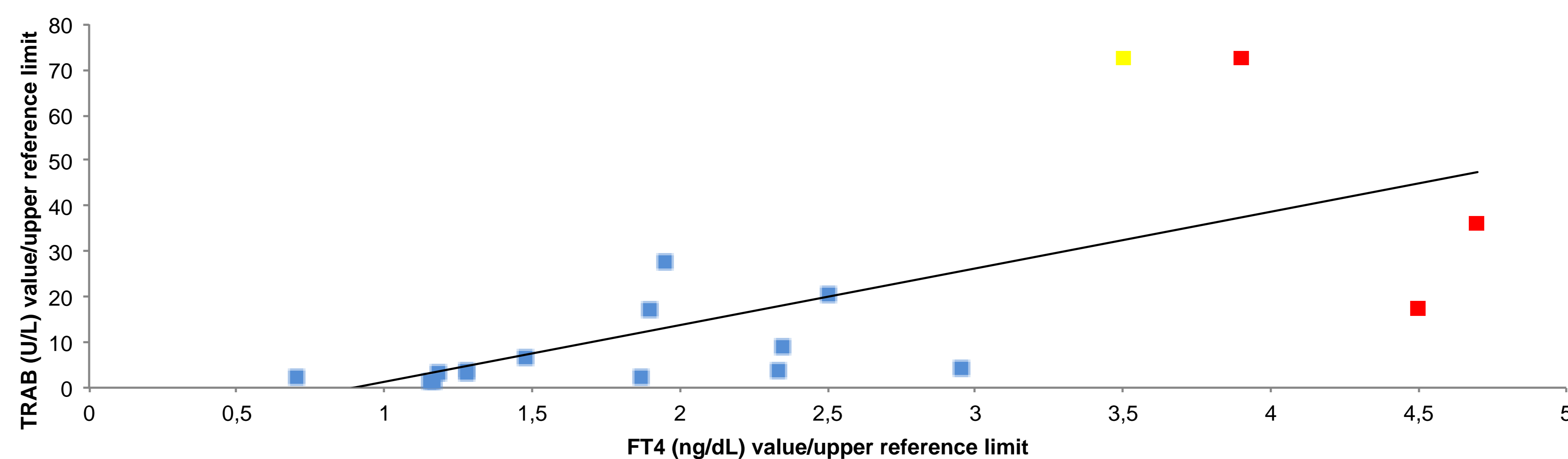
17 newborns of mothers taking an **ANTI-THYROID DRUG** (MMZ-PTU)

3/3 (100%) Maternal TRAB not measured or title not available

9/17 (52%)

- Fetal tachycardia (2/3)
- Neonatal tachycardia/hypertonus/exophthalmus
- Diagnosis and start of treatment: 3-4 days
- Significant TRAB elevation (>17 times upper reference limit)
- No fetal signs/symptoms.
- Neonatal symptoms: tachycardia in 3/17
- Diagnosis: 3-21 days
- Treatment (MMZ) started in 9 patients (53%)
- TRAB elevation in all newborns (milder, apart from one not well therapy-controlled during pregnancy)

Correlation between neonatal TRAB and FT4 values at the diagnosis



## Conclusions

**Maternal TRAB level determination** is essential in order to identify newborns at risk of developing neonatal hyperthyroidism, nevertheless is seldom disregarded especially in mothers that previously underwent total thyroidectomy

↑ ↑ ↑ Neonatal TRAB levels  
↓  
More severe clinical and hormonal features  
↓  
Treatment is needed

Milder neonatal TRAB levels  
↓  
Less severe and belated forms  
↓  
Treatment not always needed