

THYROID GLAND

Teratogenic effects of antithyroid drugs

Fetal exposure to a combination of methimazole and carbimazole, two antithyroid drugs used to treat clinical hyperthyroidism, in the first trimester of pregnancy is significantly associated with the risk of congenital malformations, assert researchers of a study in the *Journal of Clinical Endocrinology and Metabolism*.

Clinical hyperthyroidism in pregnancy requires treatment with suppressive antithyroid agents to ensure maternal euthyroid status. Concerns about risks for the fetus in pregnant women treated with antithyroid drugs, particularly methimazole, have been apparent for many years. An association between teratogenic risk and propylthiouracil has been less evident.

Clementi *et al.* examined the association of propylthiouracil and a combination of methimazole and carbimazole with congenital malformations using data from the International Clearinghouse for Birth Defects Surveillance and Research (ICBDSR) in a case-affected control analysis. Multiple tests (exposed versus nonexposed for isolated, multiple and

total malformations, stratified by year and surveillance program) were performed.

The study included 18,131 cases with malformations and reported first-trimester exposure to medication. A total of 127 infants were born to mothers with known first trimester antithyroid drug exposure (propylthiouracil $n = 47$; methimazole/carbimazole $n = 80$).

Prenatal exposure to methimazole and carbimazole was significantly associated with choanal atresia (nasal passages are blocked by bone or tissue formed during fetal development) and omphalocele (abdominal organs, covered only by a thin transparent membrane, protrude outside the abdomen into the base of the umbilical cord).

“The associations with omphalocele and choanal atresia are consistent with previous reports and definitely suggest that these malformations could be part of a specific, even if rare, embryopathy,” says lead investigator Maurizio Clementi (University of Padova, Italy). A possible teratogenic effect of propylthiouracil could not be confirmed.



McSharry family, UK

“When available, propylthiouracil should be preferred as the initial therapy for maternal hyperthyroidism during the first trimester of pregnancy,” concludes Clementi.

Linda Koch

Original article Clementi, M. *et al.* Treatment of hyperthyroidism in pregnancy and birth defects. *J. Clin. Endocrinol. Metab.* doi:10.1210/jc.2010-0652