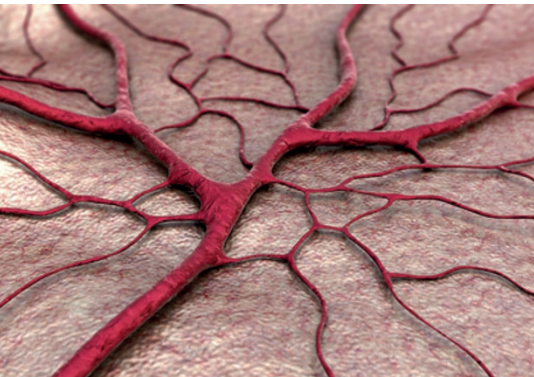


THYROID GLAND

Human thyroid gland development and function —angiogenesis in the spotlight

Impaired angiogenesis during the fetal period is associated with thyroid dysfunction at birth, shows new research in a cohort of newborn babies from the Generation R Study (Rotterdam, The Netherlands).

The thyroid gland is a highly vascularized organ and previous studies have revealed a link between angiogenesis and thyroid function in individuals



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treated with antiangiogenic drugs and in animals with experimentally altered angiogenesis. However, “no human data were available on the effects of angiogenesis on thyroid development,” comments study author Tim Korevaar.

The research team measured the levels of placental growth factor and soluble vascular endothelial growth factor receptor 1 (sVEGFR-1, also known as sFLT-1), which are factors that stimulate and inhibit angiogenesis, respectively, in cord serum samples collected from 3,525 neonates. Levels of TSH and free T_4 were also measured. Levels of hormones or growth factors were defined as elevated when they were above the 97.5th percentile and decreased when they were below the 2.5th percentile.

A positive association was found between levels of sVEGFR-1 and levels of TSH, whereas sVEGF-1 levels were negatively associated with levels of free T_4 . Newborn babies with elevated levels of

sVEGFR-1 had a 2.8-fold increased risk of hypothyroxinaemia. Decreased levels of placental growth factor also increased hypothyroxinaemia, by 6.7-fold. “Our findings suggest that these proangiogenic and antiangiogenic factors play an important part in intrauterine thyroid development,” concludes Korevaar.

The investigators are now interested in assessing the duration of the effects of these angiogenic factors on thyroid function in newborn babies, and thereby their effects on child development.

“Potentially, increased knowledge on this (patho)physiology could lead to a better understanding of which children need thyroid hormone supplementation,” concludes Korevaar.

Joana Osório

Original article Korevaar, T. I. *et al.* Soluble Flt1 and placental growth factor are novel determinants of newborn thyroid (dys)function: the Generation R Study. *J. Clin. Endocrinol. Metab.* doi:10.1210/jc.2014-1884