

Developmental Thyroid Diseases and Cholinergic Imbalance

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Editorial

Thyroid hormones (THs) regulate the brain development (El-bakry et al., 2010; Ahmed, 2011, 2012a,b, 2013, 2014, 2015a-c, 2016a-d, 2017a-f; Ahmed et al., 2008, 2010, 2012, 2013a,b, 2014; 2015a,b; Ahmed and Ahmed, 2012; Ahmed and Incerpi, 2013; Van Herck et al., 2013; Ahmed and El-Gareib, 2014; Incerpi et al., 2014; Candelotti et al., 2015; De Vito et al., 2015; El-Ghareeb et al., 2016; Ahmed and El-Gareib, 2017). The cholinergic system [acetylcholinesterase (AChE) and butyrylcholinesterase (BuChE)] (Carageorgiou et al., 2007; Tousson et al., 2012), and the neuronal development (Hadj-Sahraoui et al., 2000; Zhang et al., 2009) might be disturbed by neonatal thyroid deficiency (Ahmed and El-Gareib, 2014; Ahmed et al., 2014). Also, these might diminish the development of cholinergic synapses and brain function. In contrast, hyperthyroidism can accelerate the development of the cholinergic neurons (Gould and Butcher, 1989; Ahmed et al., 2008). Thus, any thyroid disorders might be associated with neurodevelopmental defects through decreasing T3 level (Sawin et al., 1998) by recruitment of its transcriptional corepressors and/or dissociation of coactivators (Moriyama et al., 2007).

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