Maternal Iodine Supplementation:
Clinical Trials and Assessment of Outcomes
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PRESENTATION ABSTRACT

Assessment of Memory

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Abstract

Memory is critical to cognitive development as well as everyday functioning. Specific neural structures, in particular the hippocampus, are critical for memory. The hippocampus undergoes a protracted course of both prenatal and postnatal development, rendering it susceptible to a variety of insults including nutritional deficiencies in general and iodine deficiencies in particular. In this presentation, I will summarize what is known about the development of the hippocampus and how its trajectory might be affected by iodine deficiencies. I then will describe means of assessing memory function in infancy and very early childhood, with emphasis on methods proven to be sensitive to other nutritional deficiencies, specifically, iron (i.e., imitation-based tasks and event-related potentials [ERPs]). I then will outline a plan for investigation of effects of iodine deficiency on memory function in infancy and early childhood.

References

1. DeBoer, T., Wewerka, S., Bauer, P. J., Georgieff, M. K., & Nelson, C. A. (2005). Neurobehavioral sequelae of infants of diabetic mothers: Deficits in explicit memory at 1 year of age. *Developmental Medicine and Child Neurology, 47*, 525-531.
2. deRegnier, R-A., Nelson, C. A., Thomas, K., Wewerka, S., & Georgieff, M. K. (2000). Neurophysiologic evaluation of auditory recognition memory in healthy newborn infants and infants of diabetic mothers. *Journal of Pediatrics, 137*, 777-784.
3. Nelson, C. A., Wewerka, S. S., Borscheid, A. J., deRegnier, R-A., Georgieff, M. K. (2003). Electrophysiologic evidence of impaired cross-modal recognition memory in 8-month-old infants of diabetic mothers. *Journal of Pediatrics, 142*, 575-582.
4. Seress, L., & Ábrahám, H. (2008). Pre- and postnatal morphological development of the human hippocampal formation. In C. A. Nelson & M. Luciana (Eds.), *Handbook of developmental cognitive neuroscience, Second Edition* (pp. 187-211). Cambridge, MA: The MIT Press.
5. Wei, W., Wang, Y., Wang, Y., Dong, J., Min, H., Song, B., Chen, J. (2013). Developmental hypothyroxinaemia induced by maternal mild iodine deficiency delays hippocampal axonal growth in the rat fffspring. *Journal of Neuroendocrinology, 25*, 852-862.