

## Professor Jean Holowach-Thurston: Who along with Spouse Laid the Foundation Stone of Modern Pediatric Neurology as Superspeciality

Jean Holowach Thurston (June 22, 1917–April 29, 2017), Emeritus Professor of Neurology and Paediatrics, Washington University School of Medicine in St. Louis, remained at the forefront of research into seizure disorders, was credited for providing the first guidelines for anticonvulsant withdrawal in children, and was a great teacher, who embodied pediatric neurology many decades prior to emergence of pediatric neurology as true discipline. She also demonstrated significant differences between cerebral energy metabolism of childhood and adulthood and aptly well known and recognized globally for such landmark study.<sup>[1]</sup>

Jean Holowach Thurston received medical graduation at the University of Alberta and completed fellowship in pediatrics in 1945–1947, at Washington University School of Medicine. Later on, she completed another neurochemistry fellowship. In 1949, she joined the Department of Pediatrics at St. Louis as instructor and sequentially got promoted as Professor of Pediatrics in 1975, and also got additional charge as Professor of Neurochemistry division of Neurology in 1982 and finally become Professor Emeritus in 1987.<sup>[2]</sup>

Prof. Holowach Thurston evaluated the clinical aspects of epilepsy including long-term studies examining anticonvulsant withdrawal effects in the pediatric patients suffering from epilepsy and concluded various risk factors for seizure recurrence.<sup>[3]</sup>

Prof. Holowach Thurston had profound interest in cerebral metabolic studies in relation to neurological aspects of the neonate and developmental brain chemistry including the effects of malnutrition on pediatric cerebral energy metabolism, effect of developing brain in relation of the exhaustion of energy reserves, cerebral uptake and utilization of energy sources such as fructose, and strongly advocated that serum glucose level was an unreliable index of brain glucose and in fact glucose supplementation improved outcome in infants and small children in the anoxic events, which is contrary to the commonly observed phenomenon in adult population.<sup>[4]</sup> She also remained deeply involved in investigating the activity of various mitochondrial enzymes and intermediates in salicylate toxicity and experimental neonatal asphyxia.<sup>[5]</sup> She did a detailed analysis of adverse effects of commonly prescribed medications for infants and children such as prolonged therapy with insulin, glycerol, glucose, hydrocortisone, and aminophylline. She along with her spouse, late Prof. Donald L. Thurston, Chairman of Pediatrics at the St. Louis Children's Hospital, jointly carried out various collaborative research projects for

utility of newer antiepileptic therapy, for example, ACTH and acetazolamide in children. In another collaborative study, with Steve Rothman, she evaluated neuroprotective effect of ketamine and the delayed neurotoxic effects of excitotoxic amino acids.

Prof. Holowach Thurston at her laboratory was also involved with anticonvulsants and amino acid metabolism in human liver and brain, the role of taurine in cerebral osmoregulation, and factors governing cerebral water and salt balance.<sup>[5,6]</sup> Prof. Holowach Thurston also developed methods of metabolic assays of cerebrospinal fluid for the detection of various inborn errors of metabolism. She was also credited first to investigate the possible application of valproic acid as neuroprotective effect under hypoxic-ischemic conditions and the potential roles of pantothenic acid, carnitine, and acetylcysteine in the prevention of valproate-induced hepatic toxicity.

Prof. Holowach Thurston received several awards. Besides academics, she had interest in gardening, opera cooking, adventure, travel, nature, and golf. Prof. Jean Holowach Thurston always made extraordinary efforts and began a new maintained a tradition to facilitate junior colleagues for which she was awarded with Fomon-Peters Founders Award of the Midwest Society of Pediatric Research in 1990. She used encouraged to think biochemically and remained very popular among patients, staff, and members at various national and international conferences.

### Kanwaljit Garg, Guru Dutta Satyarthee

*Department of Neurosurgery, Neurosciences Centre, All India Institute of Medical Sciences, New Delhi, India*

#### **Address for correspondence:**

*Dr. Guru Dutta Satyarthee,  
Department of Neurosurgery, Room No. 714, Neurosciences  
Centre, All India Institute of Medical Sciences, New Delhi, India.  
E-mail: duttaguru2002@yahoo.com*

### References

- Holowach-Thurston J, Hauhart RE, Jones EM, Ikossi MG, Pierce RW. Decrease in brain glucose in anoxia in spite of elevated plasma glucose levels. *Pediatr Res* 1973;7:691-5.
- Connolly A, Gurnett CA, Rothman S, Zempel J. Jean Holowach Thurston, MD (1917–2017). *Neurology* 2017;89:1208-9.
- Thurston JH, Thurston DL, Hixon BB, Keller AJ. Prognosis in childhood epilepsy: Additional follow-up of 148 children 15 to 23 years after withdrawal of anticonvulsant therapy. *N Engl J Med* 1982;306:831-6.
- Thurston JH, Warren SK. Permeability of the blood-brain barrier to monosodium glutamate and effects on the components of the energy reserve in newborn mouse brain. *J Neurochem* 1971;18:2241-4.

5. Thurston JH, Hauhart RE, Dirgo JA. Glycerol treatment in bacterial meningitis. *Pediatr Infect Dis J* 1996;15:99-100.
6. Thurston JH, Hauhart RE. Vitamins to prevent neural-tube defects. *N Engl J Med* 1993;328:1641-2.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
<b>Quick Response Code:</b> 	<b>Website:</b> <a href="http://www.asianjns.org">www.asianjns.org</a>
	<b>DOI:</b> 10.4103/ajns.AJNS_265_17

**How to cite this article:** Garg K, Satyarthee GD. Professor Jean Holowach-Thurston: Who along with spouse laid the foundation stone of modern pediatric neurology as superspeciality. *Asian J Neurosurg* 2019;14:336-7.

© 2019 Asian Journal of Neurosurgery | Published by Wolters Kluwer - Medknow