Perinatal Profiles: Professor John (Johnny) Lind, Neonatology Pioneer

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Introduction
Professor John Lind was born and educated in Stockholm, Sweden. He received his medical degree from the Karolinska Institute with “Fetal and Neonatal Circulation” as his thesis. His interest in this area prompted him to establish a neonatal cardiovascular research laboratory at two sites, the Nortull Hospital and Southern Maternity Hospital, both affiliated with Karolinska. Over 3 decades, many of his overseas trainees conducted their research under his guidance at these sites. He was an astute, passionate, inspiring, and kind mentor to the visiting fellows who went back to their home countries to pursue research endeavors. His own achievements, as well as those of his former students, earned him international respect and accolades, including the Barclay Prize of the British Institute of Radiology in 1959, the Ylppo Gold Medal Award for Pediatric Research in Helsinki in 1967, and the Gold Medal of the Finnish Heart Association in 1976, among others. To quote the late Leo Stern’s introductory remarks during a Memorial Symposium in Professor Lind’s honor: “A person’s contribution to science and society is not only from his own works but the accomplishments of his students. In this regard, Professor Lind has indeed made a tremendous impact not only from his own scientific accomplishments but also the contributions of many of his former trainees from abroad who went on to establish their own research and academic programs in many countries.” (1) Professor Lind’s eminent international reputation also was evidenced by his multiple visiting lectureships in Scandinavian countries, Europe, and both North and South Americas. Professor Lind was an outstanding model of a great scientist, an inspiring mentor, and a kind man who loved the arts and reading (Figure).

The Scientist
During the embryonic stage of neonatology, several noted academicians began to work on its scientific foundations by studying the various aspects of perinatal biology. One of them was Johnny Lind, a pediatric cardiologist by training, who had a strong passion for understanding the genesis and physiology of the cardiovascular system of the developing fetus. He, in collaboration with Professor Carl Wegelius, a radiologist, painstakingly used the radiographs and cine-angiographies they had collected from fetuses and newborns of various gestational and postnatal ages to describe fetal and neonatal circulation. (2) The article they published in 1949 formed the basis for our understanding of cardiovascular adaptation from fetal to transitional and neonatal life. That publication also exemplified Professor Lind’s enormous contribution to the budding field of neonatal medicine. He subsequently focused his efforts on understanding the physiologic consequences of placental transfusion in newborns, (3) a subject that has seen recent resurgence of interest in both

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term and preterm infants for potential reduction of the incidence of anemia during infancy in the former and reduction of acute or perhaps long-term complications in the latter group of infants, when placental transfusion is allowed by delayed cord clamping at birth.

Johnny’s other important contribution to neonatology was his early strong advocacy for family-centered care. He insisted that the formation of an integral family begins in the delivery room. His favorite quotation was “With the birth of the child comes the birth of the family,” a commonsense concept that was not appreciated by everyone in those days. He strongly advocated the involvement of fathers in the delivery room at a time when they generally were barred from the delivery suites. He was also one of the first individuals who asserted the value of “singing to the fetus in the womb.” Later in his career, he had a strong passion for developing play therapy for the unfortunate children who needed to be in the hospital because of illness. His pioneering advocacy resulted in the establishment of play therapy programs in many children’s hospitals worldwide.

The Mentor
One of Johnny’s unique attributes was the ability to stimulate and guide his fellows in doing research. He constantly asked questions, stimulated formation of hypotheses, and encouraged doing research to find the truth. I vividly remember an occasion during a sunny and crisp fall day in Stockholm, when Johnny went to the hospital’s formula room, grabbed two jars of baby food, and dragged me to sit on the front steps of Karolinska Barnkliniken (Swedish for Karolinska Children’s Hospital) to “brain storm.” The subject was the behavior of umbilical vessels at the time the infant takes the first breath. He theorized that when the infant takes the first breath and the oxygen saturation rises, the umbilical artery would constrict while the umbilical vein would remain patent with continuous blood flow to the fetus. To prove his point, he arranged to have audiovisual personnel join us at a delivery and take a movie of the intact umbilical cord during a normal vaginal term delivery. Lo and behold, the movie clearly showed the constriction of the umbilical arteries as the infant became pink with the first breath. This anecdote clearly demonstrates his original thought process and the ability to prove his point to his pupils. This episode also formed the basis for his thoughts on the occurrence of placental transfusion with delayed cord clamping at the time of birth. His provocative probing of scientific questions was always a stimulus for his fellows. It is not accidental that he trained so many noted academic neonatologists, including Mildred Stahlman, and the late Leo Stern and Bob Usher.

The Avid Art Lover and Reader
One of Johnny’s passions and hobbies was fine arts. When he visited big cities such as Chicago and New York, he would spend at least a day visiting the Art Institute and the Metropolitan Museum of Fine Arts. The Impressionist paintings at the Met, in particular, excited him. When he came to Providence, Rhode Island, as a visiting professor, he insisted that a half day of his visit be set aside to visit an art museum. He spent that time at the Museum of Rhode Island School of Design, behaving like a happy kid in a candy store, really enjoying the exhibits of this small but quaint museum. He revisited this Museum a number of times just to enjoy the full length portrait of a lady by Manet.

His other avid hobby was reading. He loved both fiction and nonfiction. He always had a book (usually a pocket book) with him. When taking a cab from one hospital to another making his daily rounds, he would read the book during the journey.

The Man
Despite his stature as the Professor of Pediatrics at Karolinska Institute, who by virtue of this position also served as the pediatrician for the Swedish Royal Family and as a member of the prestigious Nobel Prize Selection Committee, Johnny was a low-key, unassuming, kind-hearted, and somewhat shy person. In fact, he confided to me at one point that he always was intimidated by those who worked for him. He always put the interests of others ahead of his own. I fondly recall the summer of 1964 when I arrived at Stockholm to begin my Fellowship and found that Johnny had had a mild heart attack. In those days, patients who had myocardial infarcts were required to have 6 weeks of bed rest in the hospital. He insisted that I visit him frequently during the 6-week period to talk about my research plans. His devotion to his trainees was very evident. He was a man who never said no to a reasonable request from anyone.
He was indeed a generous, kind, and very much loved and admired person. He was a hard worker, a classic workaholic; those who worked for him don’t recall his ever taking a vacation all his life.

In summary, Professor John Lind was a man of vision. His career focused on understanding perinatal cardiovascular adaptation as well as pregnancy and childbirth as an opportunity to create a whole and integrated family. One statement clearly reflected his deep feeling for the unborn and the newborn: “Personally, I feel that one of the biggest discoveries in the field of pediatrics in my time is the concept that the newborn child is a small human being, with all its senses developed, open, and receptive.” His passion translated into a career highlighted by the acquisition of new knowledge of perinatal cardiovascular physiology, promulgation of the concept of an integrated family in the delivery room setting, and the importance of play therapy for sick children. His reputation as a great mentor and role model attracted countless trainees from all over the world, who, in turn, have made significant contributions to the science of perinatal medicine. This amazing, down-to-earth man of science, who also was an art and book lover, was well-loved by those who were fortunate to know and work for him.

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References
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