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JOHAN F. SCHOEMAN

p0010 JOHAN SCHOEMAN was raised in Port Elizabeth in the Eastern Cape Province of South Africa. He studied Medicine at Stellenbosch University (SU) obtaining the MBChB degree in 1971 (Fig. 1). As a medical student he often worked as volunteer in rural areas during holidays and after graduating from medical school, he obtained valuable clinical experience by working as a medical officer at the Nkhoma Mission Hospital in Malawi for 18 months. Johan and a senior nursing sister traveled over 3000 km, mostly dirt-road journey, to Nkhoma in an old Volkswagen Beetle. Anecdotally, the medical officer post became vacant at short notice after the previous incumbent was dismissed for operating on a dog in the septic theater of the hospital. Johan's interest in tuberculosis was probably sparked by being given the responsibility for the tuberculosis clinic while stationed at Nkhoma Hospital.

Figure 1 Johan Schoeman. f0010

p0015 Schoeman's decision to pursue a career in pediatrics was driven by his love of children and the fact that he suffered severe asthma as a child. In 1978 he qualified as a pediatrician by successfully passing the fellowship exam in pediatrics (FCPaed) of the College of Medicine of South Africa (CMSA) as well as obtaining a Master of Medicine (MMed) degree cum laude from SU. For his outstanding academic performance, the CMSA awarded him with the Robert McDonald medal, which is awarded annually to a candidate who achieves the highest standard of excellence in the Fellowship examination of the College of Paediatricians of South Africa.

p0020 Shortly thereafter, Schoeman joined the pediatric department at Tygerberg Academic Hospital (TAH) as consultant and at SU as lecturer. In 1981 a bursary for further international study by the British Council afforded him the opportunity to further his training in pediatric neurology as an honorary registrar at The Hospital for Sick Children, Great Ormond Street, London, and the Sick Children's Hospital in Edinburgh. At the latter hospital, he greatly benefited from the mentorship of Dr. Keith Brown, a gifted teacher of pediatric neurology. This association strengthened his understanding and expertise in matters relating to raised intracranial pressure (ICP).

p0025 Upon his return to TAH, Schoeman found himself in the midst of a growing tuberculous meningitis (TBM) epidemic and the skills and pressure monitoring equipment he acquired would later prove very useful. Brown subsequently served as an external examiner of his MD thesis (1987) entitled "The role of continuous intracranial pressure monitoring in the management of children with tuberculous meningitis."

p0030 It is in the field of childhood TBM that his contributions to pediatric neurology proved most significant. Insights gained from his research investigating the association of multiple serial lumbar cerebrospinal fluid (CSF) pressure recordings and computed tomography (CT) findings, different treatment methods and clinical outcome has allowed for a better understanding of the mechanisms, monitoring and management of TBM-related hydrocephalus [1]. Some of his novel research findings were that (1) most TBM cases (70%–80%) have communicating hydrocephalus due to a basal cistern block; (2) the rest have noncommunicating hydrocephalus due mainly to fourth-ventricular outlet obstruction; (3) the level of the CSF block can only be assessed by air encephalography and not by conventional imaging alone; and (4) medical treatment comprising acetazolamide, a carbonic anhydrase inhibitor, and furosemide, a loop diuretic, normalizes ICP in 80% of children with communicating hydrocephalus. The latter finding has spared numerous TBM children from requiring ventriculoperitoneal (VP) shunts, often multiple with a high complication rate, and has widely been adopted as the optimal approach of managing TBM-related hydrocephalus.

p0035 According to the World Health Organization (WHO), an estimated 10.0 million people developed TB disease in 2018, with more than two-thirds coming from South-East Asia, 44% and Africa, 24%.

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Extrapulmonary TB, inclusive of TBM which is uniformly fatal if unrecognized and untreated, represented 15% of the cases that were notified globally in 2018 [2].

p0040 Schoeman and coworkers conducted the first randomized, controlled trial to test corticosteroid use in childhood TBM. The study highlighted the value of adjunctive corticosteroids as it significantly improved the survival rate and intellectual outcome of children with TBM [3]. In addition, serial CT imaging also demonstrated that corticosteroids enhanced resolution of the basal exudate and tuberculomas. International TBM treatment guidelines currently recommend adjunctive corticosteroids for all patients, adults, and children, with TBM.

p0045 Unfortunately, adjunctive corticosteroids did not significantly improve all of the inflammatory neurological sequelae of TBM such as motor deficit, blindness, and deafness. This led Schoeman and coworkers to explore the use of more potent immunomodulatory agents, such as thalidomide, a tumor necrosis factor-alpha inhibitor. His choice of thalidomide was based on studies showing its efficacy in the treatment of the complications of leprosy, another chronic granulomatous disease. After a safety and tolerability pilot study yielded promising results, he and his colleagues embarked on a randomized, double blind, placebo-controlled trial to assess the effect of adjunctive thalidomide in addition to standard antituberculous drugs and adjunctive corticosteroids on the outcome of TBM [4]. Unexpectedly and unfortunately, the study had to be terminated prematurely because of serious adverse effects and deaths that occurred in the thalidomide group; a finding that in hindsight can be attributed to the fact that the thalidomide dose was too high. Because of definite antiinflammatory findings in these studies, Johan, true to his character, persisted in conducting thalidomide research in TBM, albeit at much lower dosages and for more targeted indications. One of the important research findings emanating from these studies were that adjunctive thalidomide provides significant clinical benefit in children with TBM-related optic neuritis enabling dramatic recovery in vision [5]. The impact and clinical relevance of Johan's research was highlighted at the 2019 TBM International Research Consortium meeting in Lucknow, India where a local physician reported salvaging vision in more than 50 TBM patients by the usage of adjunctive thalidomide.

p0050 Johan's contribution to improving outcome of childhood TBM, especially in resource-constrained environments is truly significant and the bulk of his research findings have translational value. Examples include studies confirming the efficacy and safety of short-term, intensified antituberculous therapy of 6-month duration versus 12-month duration as proposed by the WHO and the effectiveness and safety of home-based TBM treatment [6,7]. For carefully selected children, home-based TBM treatment has become the norm at TAH, enabled by close supervision, educating the primary caregiver, and regular follow-up.

p0055 In addition to his work on childhood TBM, Shoeman remained a consummate clinician and teacher, having learnt and honed his examination, assessment, and neurological localization skills in the early days of routine neuroimaging and prior to the advent of routine genetic testing. He freely imparted his knowledge, insight, and clinical acumen to his many junior colleagues and students, including supervising a number of doctoral theses on TBM. In 2005 he was awarded the Paul Harris Fellowship award in recognition of his exceptional service to both the Rotary Foundation and TAH for his contribution to charitable work and interventions within communities. Johan retired from full-time work in 2015, but remains active as a respected member of the TBM International Research Consortium. When not working, he enjoys gardening, cycling, acts as a church elder, and entertains his four grandchildren.

Ronald Van Toorn and Regan Solomons AU:1

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