Neophytes in Neonatology

By Dr Yip Yeng Yoong

After I completed my housemanship, my first medical officer (MO) posting was to the Kandang Kerbau Hospital (KKH) Neonatal Unit. This was in May 1984. At that time, Neonatology, Cardiothoracic Surgery and Neurosurgery were unpopular postings, so other than trainees, usually junior MOs, especially first year MOs were posted to these departments. I was therefore totally unprepared and untrained for my first MO posting.

So on a grey and rainy Monday, I reported to work at the old KKH. The department was small with only two consultants and a registrar. Only four MOs were posted to the unit. In those days, KKH handled 15,000 to 20,000 deliveries per year.

At the Neonatal Unit were two premature nurseries, called Premature Nursery 1 (PN1) and PN2. Each nursery was the size of a large storeroom, and had a total capacity of 20 babies each, with cots set less than three feet apart from each other. Parents could not visit, but could see their babies through a small viewing window. The only time they could enter was when their babies were just born and admitted, were dying or were discharged. The environment was hot and humid, so when we did our procedures fully gowned, we would sweat profusely till our shirts were damp.

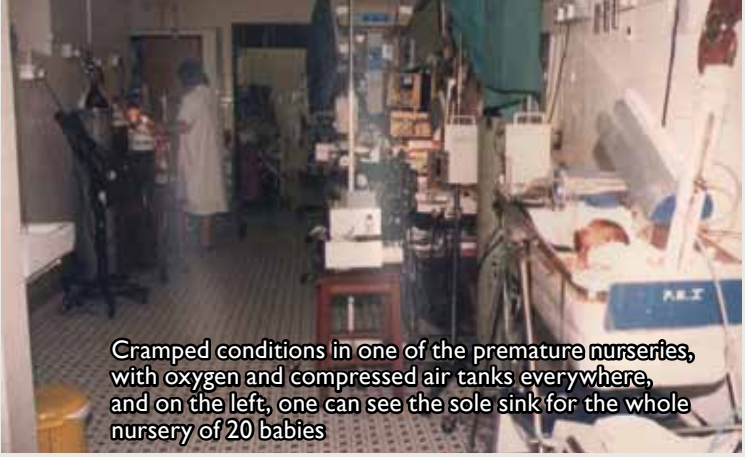
The Neonatal Intensive Care Unit (NICU) was poorly equipped. There were no radiant warmers or incubators, but all that equipment would not be able to fit into such a small space anyway. All the babies, even the sickest ones, were nursed in standard baby cots. For temperature control, there was a bar fixed to the base of the cot. Attached to this bar was an incandescent light bulb with a semicircular hood made of zinc sheets, and this contraption would radiate heat from the light bulb to warm the baby. When the baby was cold, the bulb was moved down the bar nearer to the baby. Sometimes, when the baby (especially a male infant) urinated, the stream of urine would hit the light bulb and cause the glass to crack and explode. As far as I know, no baby suffered any injury from this.

For monitoring, there were only one heart rate monitor and two transcutaneous (TCO_2) monitors in each nursery. Pulse oximeters were not commercially available then. There were a few apnoea mats which were next to useless as they gave so many false alarms. Sometimes, the hospital amahs served as our human monitors as they mopped the floor. They would shout, "Staff nurse, baby *biru* (Malay for 'blue')!" They even had the initiative to stimulate the babies to breathe or give them a few puffs of the anaesthetic bag if the babies were on continuous positive airway pressure (CPAP).

There were only two ventilators in each nursery, so when we ran out of ventilators, we would intubate the baby and put the baby on bottle CPAP. Nasal CPAP was not used then. If we ran out of ventilators, and there were babies who needed ventilation, the nursing coordinator would deploy nurses to manually bag the babies. At that time there was no piped in oxygen or compressed air. What we had were big tanks of oxygen and air which periodically needed changing, and these big tanks contributed further to the cluttered conditions in the NICU.

When we inserted intravenous cannulas, we had to use 22G venulas even though the babies were small, as we reserved the more expensive 24G venulas for the even smaller and more difficult babies. I remember one occasion when the unit ran out of three way taps. So to do arterial gases, we had to detach the drips from the umbilical arterial catheters, pinch the catheters with our fingers to regulate the blood flow and then put capillary tubes at the end of the catheters to collect blood. Needless to say, the septic rates went up. The hospital had to spend thousands of dollars on non-standard antibiotics to treat sepsis, all because of supply problems with three way taps which cost only a few dollars.

There was little supervision from the consultants and registrars. There was only one MO on call, and the consultant and registrars did not stay in. We did eight to ten calls every month, and probably walked miles every night when we were on duty, shuttling from peripheral wards, labour wards, operating theatres (OTs) to premature nurseries. We did standbys for all high-risk deliveries and premature deliveries. One night, I was on duty when a baby developed a tension pneumothorax. There were plenty of these pneumothoraces, sometimes bilateral, occurring in the pre-surfactant era. I called the consultant on duty and all he said



Cramped conditions in one of the premature nurseries, with oxygen and compressed air tanks everywhere, and on the left, one can see the sole sink for the whole nursery of 20 babies

Baby sleeping in a primitive warmer

was, "Carry on! Put in a chest tube!" So I did my first chest tube supervised by the nursing sister. The nurses then were of a different breed and we learnt a lot from them by the bedside. So procedures like intubation, and the insertion of drips, umbilical arterial catheters and venous catheters, were frequently unsupervised unless you were fortunate enough to have the registrar or consultant around at that time. Very often, our only resources were the senior and experienced nurses in the nursery. And what a superb and different breed those nurses were as compared to those in the present.

Standbys in the OTs or labour wards were particularly stressful for the novice MO. Being a fresh MO, I was inexperienced in neonatal resuscitation, so I felt very inadequate and burdened in managing the babies effectively in that first golden hour of resuscitation which makes a difference in outcomes for the babies. The MOs attended to all standbys including high risk pregnancies and preterm deliveries, even including very early gestations like 27 or 28 weeks. Sometimes the more senior anaesthetists would give us a hand. I remember during one lower segment caesarian section (LSCS), the baby needed resuscitation. After bagging and intubating the baby, the little one just refused to breathe. The anaesthetist attending to the LSCS came to my rescue. He blew his own breaths manually into the endotracheal tube. He said the relative hypercarbia and lower oxygen concentrations in his breaths would initiate the hypoxic drive in the baby and stimulate the little one to initiate respiration?! It worked and the baby started breathing and crying, and we were able to extubate the baby. I did wonder whether his theory was correct or whether it was just due to halitosis.

The old KKH was also very prone to power failures. The whole hospital could suddenly suffer a blackout and quite often the emergency backup power from the generator did not kick in. One night, when I was on call, the power failed for more than an hour. I had to run up to the NICU to help the nurses bag the babies.

So the first two months of my posting felt like a form of purgatory for misdeeds in my past. But after getting used to the routine and becoming more competent in procedures, I quite enjoyed my posting. The difficulties and the long hours of work helped the MOs to bond together. We looked after each other and tried to be cooperative and flexible with changes in calls, and so on. The nurses were great and they would look after us with drinks and food when we were on call. Because of the workload, we did mature faster in our abilities to assess babies and perform procedures like intubations, insertion of chest tubes and umbilical catheters, and intravenous cannulation.

That was the situation in the old KKH 28 years ago. Things have changed so much since then, and how different it is now! The new NICU and Special Care Nursery at the current KKH are like six-star hotels compared to the old NICU. The NICU is so spacious and well equipped now. The MOs are well supervised, and the registrars and even consultants do stay-in calls. However, the hospitalisation fee 28 years ago was only $20 per day and there were no treatment fees or doctors' professional fees. Now the daily charges in the NICU can go up to $2,000 to $3,000 per day.

My first MO posting in KKH's Neonatal Unit came to an end very quickly and I went on to do Medicine in Toa Payoh Hospital. However, my experiences in the old KKH did kindle in me a passion to pursue a career in Neonatology. Maybe it was because I felt guilty that I was unable to provide optimal care to these vulnerable babies in their first few hours, due to my inexperience. So instead of specialising in Internal Medicine, I decided to specialise in Paediatrics since I wanted to be a neonatologist. After my posting in Medicine, I was successful in my application for a paediatric traineeship in National University Hospital. One of my fellow MOs and classmates working with me during the same posting also became a neonatologist.

I still look back fondly on those days in KKH, and often wonder how we coped with all the work, and the lack of adequate facilities and supervision. I guess it was the same for almost all the different departments in the hospitals back then. Those were really the bad old days. But it did make us, the more senior generation of neonatologists, appreciate all the improvements and significant changes in the neonatal scene in Singapore. 28 years ago, a baby with a weight of less than one kilogram and gestation of less than 27 weeks was not likely to survive. Now, we are saving babies with weights of 500 grams and gestations of 24 weeks, and many of them with intact survival. SMA

Dr YY Yip's first MO posting after housemanship was to the KKH Neonatal Unit in 1984. The posting and the experiences of working in the NICU inspired him to pursue a career in Neonatology and Paediatrics. He currently practises in Gleneagles Hospital as a neonatologist.