Dr John Snow (1813 – 1858) - His work with infants and children

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John Snow (1813-1858), was a pioneering figure in both anaesthesia and epidemiology. Born in York, he was apprenticed to the surgeon William Hardcastle in Newcastle upon Tyne from the age of 14 years. After some years working in England's northeast, during which he first encountered cholera, he travelled to London on foot in 1836 in order to continue his studies, passing the examinations of both the Royal College of Surgeons and the Society of Apothecaries two years later. He gave his first ether anaesthetic in late January 1847, just over three months after Morton's successful public demonstration in Boston, Massachusetts. Over the ensuing 11 years, in addition to continuing a busy general practice and engaging in extensive research that immeasurably advanced the evolution of the specialty in its early years, he administered approximately 5000 general anaesthetics. While he cannot be regarded as, and indeed would never have claimed to be, a doctor whose particular interests or skills lay in caring for the youngest patients, it is nevertheless worth reflecting that two of his earliest published papers (1,2) related to paediatric topics.

Snow recorded the anaesthetics administered by him in handwritten diaries. While entries made prior to July 1848 are missing, these casebooks are otherwise complete and provide a fascinating insight into his anaesthetic career. The originals were presented by the family of his friend, Dr Benjamin Richardson, to the Royal College of Physicians, London in 1938. Concern having arisen over their deteriorating condition, they were painstakingly transcribed by Richard H. Ellis over a period of nine years, and published in book form in 1994 (3). Details of all anaesthetics given by Snow between March and early September 1847 were included in his first published book (4) and are therefore also available to present-day students of his life and work.

Examination of the records kept by him reveals that over 800 patients anaesthetised by Snow were aged 12 years or less. Approximately 225 of these were in the first year of life, with the youngest, one of over 100 who underwent hare lip correction, being just eight days old at the time of surgery. He had no doubt that many lives could be saved by early hare lip surgery, especially amongst the poor, because of the fact that many children with severe hare lip could not be breastfed until operated upon whilst, on the other hand, there was great mortality among those infants brought up by hand. He anaesthetised infants and children in over 10 London hospitals, but also in the homes of the various surgeons with whom he worked, and, indeed, not infrequently, in the homes or lodgings of his young patients. While John Snow worked with over 80 surgeons in total between 1847 and 1858, most of the operations on children were carried out by either William Fergusson (515) or William Bowman (80). He employed sulphuric ether prior to Simpson's introduction of chloroform into anaesthesia practice in late 1847, but subsequently used the latter agent for almost all of his patients, both adults and children. He believed that chloroform acted particularly favourably in children and observed from the outset that its effects were more quickly produced and subsided more rapidly in younger patients than in adults, writing that

this was “owing no doubt to quicker breathing and circulation”(5). There was no mortality among Snow’s paediatric patients. He recorded complications as they occurred but these were rare with crying towards the end of surgery and postoperative vomiting being the most common.

Snow’s casebooks, as transcribed by Ellis, reveal that in addition to administering inhaled agents to infants and children for the purpose of rendering them insensible during surgical operations, he also used them in the management of critical illness. It is possible to identify 15 young patients in whom he used either chloroform or Dutch liquid in 16 situations where they appeared likely to die. Patients’ ages ranged from 8 months to 17 years. Indications for treatment included laryngismus stridulus or spasmodic croup (n=7), convulsions (n=3), tetanus (n=2), and also pertussis, meningitis, typhoid and cholera (one each). Treatment was considered successful in nine cases, the remaining children died.

It is clear that John Snow, born 200 years ago last March, had a significant paediatric anaesthetic practice. Despite the use of more dangerous anaesthetic agents than those currently available and the unavailability of artificial airway support or modern monitoring techniques, morbidity in infants and children who underwent surgery while under his care was infrequent, while mortality was zero. He practised medicine over 100 years before the development of paediatric intensive care units but was willing to utilize, with some success, his medical and anaesthetic skills, using innovative agents and methods, on children who were otherwise likely to die, in an attempt to cure them. It could be argued that in addition to his legacy where anaesthesia and epidemiology are concerned, he may also reasonably be regarded as an early paediatric intensivist.

References

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5. Snow J. On Chloroform and Other Anaesthetics. London: Churchill, 1858.