

Ignaz Semmelweis and his relevance to modern-day sepsis



Semmelweis's findings were mocked and his antiseptic policy dismissed by the establishment: "Doctors are gentlemen, and gentlemen's hands are clean"

The predominating theme of British wound care in the immediate past seems to have been that of pressure ulcers (PUs), and with the advent of the 'preventable' pressure ulcer debate, iatrogenesis (any injury or illness that occurs because of medical care, but not necessarily as a result from medical errors) now carries with it the sting of potential litigation. What is more, PUs are not the only issue. The likes of norovirus and septicæmia still sweep through hospital wards, and do so with potentially devastating consequences. One hundred and sixty-nine years ago, essentially the same techniques used today were introduced by one Ignaz Semmelweis to prevent the spread of puerperal sepsis; simple hygiene and anti/aseptic techniques in the form of handwashing with chlorinated lime (MacDermot, 1912).

Semmelweis and his discoveries will forever be pertinent; 'The Eighth Report of the Confidential Enquiries into Maternal Deaths in the United Kingdom' (CMACE, 2011), found that for the study period 2006-8, genital tract sepsis had become 'the leading cause of direct maternal death in the UK for the first time since [...] 1952.' Furthermore, the mortality rate related to sepsis increased to 1.13 deaths per 100,000 births in 2006-2008 from 0.85 deaths/100,000 in 2003-2005; a 133% increase on the previous triennium. In the wider population, the statistics show what a danger sepsis is in all cases:

Padkin et al (2003) found that 27% of adult intensive care unit (ICU) admissions (1995-2000) attained severe sepsis criteria within the first 24 hours and, of these cases, 35% died before discharge from the ICU, and 47% died during their hospital stay. More generally, an analysis of multiple cause of death data in England in 2001-10 found that 1 in 20 deaths was associated with sepsis (McPherson et al, 2013).

Dubbed 'a martyr prophet of science' (Botero and Perez, 2012), Semmelweis and his findings went unheeded by the medical establishment before his tragic incarceration and death in obscurity. Appointed assistant to the Professor at the First Obstetrical Clinic of Vienna General Hospital, Semmelweis realised that maternal mortality rates due to puerperal fever at the first clinic were far larger than at the second. Through assiduous scrutiny of the variables between the two clinics, he deduced that puerperal fever was contagious, and that medical students were transmitting "cadaverous particles" from the autopsy room to their patients in the first clinic. Semmelweis instituted mandatory hand washing in May 1847, at which point his fastidious records showed sepsis mortality rate to be over 12%; this figure fell to 3% in just seven months after the introduction of his new hygiene measures, before dropping to 1.27% in the following year (MacDermot, 1912).

It is a reflection of the hidebound, entrenched attitude of the medical establishment at the time that Semmelweis's observations were ignored at best; germ theory had yet to be conceived, and dyscrasia (the four humours) was still the predominating dogma in medicine and science. Many in the establishment refuted or attacked his claims, despite the sudden jump in death tolls at institutions that had abandoned his practices after his departure. That Semmelweis died from blood-poisoning in a mental asylum is an irony of the most tragic kind. His life and findings deserve increasing heed given the threat which sepsis still presents in the modern day: "Sepsis is complex, incompletely understood, often difficult to recognise and manage, and presents a continuing challenge." (CMACE, 2011)

REFERENCES

- Botero JSH, Perez MCF (2012) *The History of Sepsis from Ancient Egypt to the XIX Century*. Available at: <http://cdn.intechopen.com/pdfs-wm/39638.pdf> (accessed 13.01.2016)
- Centre for Maternal and Child Enquiries (2011) *Saving Mothers' Lives: Reviewing Maternal Deaths to Make Motherhood Safer: 2006-08. The Eighth Report of the Confidential Enquiries into Maternal Deaths in the United Kingdom*, CMACE. Available at: <http://bit.ly/1OqAz1b> (accessed 13.01.2016)
- MacDermot HE (1912) Semmelweis and Holmes. *Can Med Assoc J* 2(1): 24-32

EDWARD WHITE
Freelance Medical Writer,
British Columbia, Canada

