From the Pages of History

Laugh your way to painlessness

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Nitrous oxide or laughing gas as we commonly know was discovered by Joseph Priestly. In the early part of eighteenth century, a lot of work went into the experiment of "airs"and "gases" in the belief that they could provide therapeutic effects. One night in 1772, when Priestly was experimenting with some of the gases he had already discovered, he mixed a few of them and discovered a new gas. He just couldn't stop laughing after inhaling this new gas, hence called it laughing gas.

Later, an influential American physician and US Senator Samuel Latham Mitchill (1764- 1831) gassed a few animals with nitrous oxide that killed the lot. He immediately proclaimed that the gas was not only poisonous but also contagious. It was only in 1800, thanks to a young scientist Humphry Davy, was this blame on nitrous oxide lifted.Davy, on inhaling nitrous oxide immediately realised that a bothersome erupting wisdom tooth felt just fine. Davy was working as a part time surgical assistant and came out with the idea that nitrous oxide can be used with advantage during surgical operations. However, not unexpectedly, his suggestions were overlooked by the surgeons and clinicians at that time. He resigned his position in 1801 and subsequently had a highly successful career that led him to the discovery of elements potassium, sodium, calcium to name a few. Regrettably, neither Davy nor any of his students continued studies on nitrous oxide. So, nitrous oxide had to wait another fateful forty years for it to be used as an anaesthetic.

Meanwhile, nitrous oxide continued to be used for recreational purposes and a medical student, Gardner Quincy Colton perfected the manufacture of nitrous oxide by heating ammonium nitrate. He went on to present scientific exhibitions, and on the night of December 10, 1844, there was one such exhibit at the Union Hall in Hartford, Connecticut. It was at the Colton exhibit that the dentist Horace Wells originated an idea that led to the demonstration of nitrous oxide as an anaesthetic. Wells noticed that a young man Sam Cooley, after taking in a lung full of nitrous oxide, tore about the room wildly without the slightest hint of having hurt his leg that was bleeding badly. When Wells enquired Cooley about his hurt leg, the latter was completely taken aback as he had no pain and had no clue as to how and when it happened. Here came the answer to painful tooth extractions! The following day Wells had his own tooth extracted and arranged for Colton to administer nitrous oxide. To Wells' relief, only a slight tinge of pain was felt and he proceeded to manufacture nitrous oxide as per Colton's instructions and used it for tooth extraction. Wells recognised the enormous potential of his discovery and arranged for a public demonstration at the Harvard Medical School in January 1845. Wells' original plan was to administer the gas for a leg amputation. The patient scheduled for the surgery refused to accept the procedure with anaesthesia and a young male student agreed to undergo the extraction of his wisdom tooth with nitrous oxide inhalation. During the procedure, the subject moved and groaned. However, he later proclaimed that little pain was actually felt and he screamed due to fear. Nevertheless Wells' demonstration was called a "humbug", destroying the good doctor's reputation (Fig.2).

Fig 1: Horace Wells

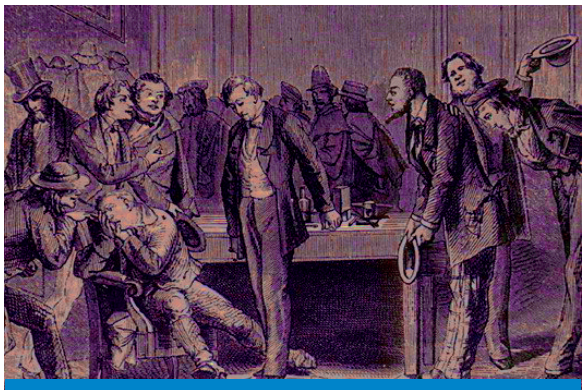

Fig 2: Unsuccessful demonstration of nitrous oxide in 1845.

Wells became dejected and later on, in 1848 died an infamous death, unaware of the fact that the French Academy of Sciences had just named him as the true discoverer of anaesthesia. Again nitrous oxide had to wait before it could be used as an anaesthetic. Meanwhile the historical successful demonstration of ether was made in 1846 by William Morton, a student and colleague of Wells.

Reintroduction of nitrous oxide as an anaesthetic in early 1860 s was by the same man who first perfected its manufacture and whose lecture and demonstration Wells had attended in 1844- Gardner Colton. He joined with a dentist, Joseph Smith for the "painless extraction of tooth". The Colton Dental Association had treated nearly 200,000 patients between 1864 and 1897 without fatality. Until 1870, nitrous oxide was administered with air, and patients used to have a livid appearance.

Edmund Andrews suggested the use of nitrous oxide with oxygen, thereby providing analgesia without cyanosis. The anaesthetic in combination with oxygen was used in as early as 1880 s to provide pain relief for labour. Later, the first anaesthesia machine was devised that could deliver variable portions of nitrous oxide and oxygen. These developments led to the reintroduction of nitrous oxide into the operating room, which was the prediction of Wells.

Though in the earlier years of discovery, nitrous oxide was less famous than its counterparts ether and chloroform, it is the only agent that has stood the test of time and is still being used in modern anaesthetic practice.

Coffee in Moderation Is a Friend of Heart, Not a Foe

Conventional wisdom and American Heart Failure Guidelines clearly suggest that coffee drinking increases the heart failure risk. Conclusions of a new study fly in the face of this. Murray Mittleman (Beth Israel Deaconess Medical Center, Boston, Massachusetts, USA) and his team carried out a meta-analysis on five prospective studies of coffee consumption and heart failure risk published between 2001 and 2011. The studies included 6522 HF events among 140,220 men and women in Sweden and Finland. The researchers found that drinking two cups of coffee a day may significantly reduce risk for heart failure (HF); however, drinking any more than that could significantly increase the risk. The mechanism underlying the association between coffee consumption and HF risk is unclear, but previous evidence suggests frequent coffee drinkers develop a tolerance to caffeine, which may put them at a reduced risk for developing hypertension. Habitual coffee consumption has also been linked to a lower risk for developing Type 2 diabetes. The results are reported in Circulation: Heart Failure

[http://www.news-medical.net/news/20120627/Two-coffees-a-day-keep-heart-failure-risk-at-bay.aspx]

- Dr. K. Ramesh Rao