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Editorial

Heat hyperpyrexia: time to act

Heat wave continues to be a serious problem for the homeless and the very poor in India. The consequences of heat waves have been appalling, both in the West as well as the East, both in tropical and temperate regions of the world. The recent heat wave that swept Europe in 2003 with a death toll of over 35,000, France accounting for more than 14,000 of them, is but an example of the special vulnerability of the people, particularly the aged and the infirm. The recurrent heat waves in India during the last two years inflicted heavy loss of human lives. Over 1000 lives were lost in Andhra Pradesh (AP) when the temperature touched 122°F in 2002 and over 1600 in 2003 in the whole of India. Yet, public perception of the hazards of high environmental temperatures is often poor and underplayed by public media and even the medical community. In an exhaustive review on the subject by the Earth Policy Institute[1] a pointed reference is made to India, 'where heat-related fatalities in thousands are no longer uncommon', that the National Disaster Management Cell (NDMC) does not *even* classify Heat Waves as under 'Natural Disaster'.

Disturbance in the heat regulatory mechanism can lead to different manifestations such as heat exhaustion and heat stroke or hyperthermia, culminating in a 'multi-organ dysfunction syndrome'[2]. Heat exhaustion represents mild to moderate illness due to loss of body fluids and depletion of salt following exposure to high environmental temperatures or intensive physical exercise resulting in intense thirst, weakness, dizziness and fainting and headache. Initially the core temperature may be slightly elevated. When it exceeds 40°C, it is often accompanied by neurological manifestations such as delirium, convulsions or coma ending in 'heat stroke'. Rise in body temperature above the 'hypothalamic set point' results in hyperthermia. If the body or rectal temperature is below 39°C, it is considered as mild hyperpyrexia and if over 40°C as severe heat hyperpyrexia. Nowadays, 'cochleal temperature' is considered a better indicator. If the precipitating cause is high environmental temperature, it is designated as Classical Heat Stroke / Illness (CHS) and if it follows strenuous physical exercise, it is known as Exertional Heat Stroke / Illness (EHI). CHS occurs in young children and elderly persons in whom the thermo-regulatory mechanism is below par or impaired. On the contrary, EHI is encountered in young adults, following strenuous exercise or soldiers on rigorous duty, marathon runners and sportsmen *etc*. In the latter category there are additional features such as muscle cramps and pain, accompanied by destruction of muscle fibres or 'rhabdomyolysis'.

Historically, a corresponding condition especially in Armed Forces, called 'Exertional Heat Hyperpyrexia', was described in the past as 'Classic Fatigue Syndrome' by the British troops from the days of the Crimean War and Indian Mutiny[3]. Sir Victor Horsely an eminent neurosurgeon and pathologist is perhaps the most celebrated victim, who died on duty in the desert in 1916[4]. The exhaustive report[5] on 125 cases of heat stroke is an oft-quoted and authoritative treatise on clinical and pathological aspects. A recent report[6] of death due to EHI of a young British Officer Cadet was followed by a vigorous debate on several aspects of exercise schedules in the Royal Army Medical Corps (RAMC), therapy and possible legal implications[7]. From time to time, such studies have paved the way for development of more rational management and treatment of cases of heat hyperpyrexia.

Sporadic cases of classical heat hyperpyrexia were known for long throughout the Indian sub-continent, by different names such as, sun- stroke, heat exhaustion, and fatal heat hyperpyrexia. The situation gradually worsened, with increasing urbanisation, construction of 'cement jungles', laying down of asphalt roads and progressive denudation of foliage or forest cover[8]. The simultaneous spread of viral diseases and repeated outbreaks of 'encephalitis-like syndrome' in