

EDITORIAL

Are Artificial Sweeteners A Public Health Hazard?

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It was a shocking news for all of us in India that a 10 year old Patiala girl Manvi died after consuming a cake on her birthday ordered from a local bakery through a food delivery app. Some media reports have blamed high level of saccharine in the cake.(1) According to another media report Health Minister of Punjab has ordered enquiry on her death. Whatever may have been the reason for this unfortunate event one thing is for sure that there is going to be a review/debate about the safety of these artificial sweeteners which are routinely added to various fast foods to enhance their taste including many soft drinks. Some of the commonly used artificial sweeteners are – aspartame, saccharine, sucralose, neotame, acesulfame-K, and stevia. Recently a news was published in Times of India - 'Artificial Sweetener in sodas possibly carcinogenic: WHO'.(2) In this article it was written that – “World Health Organisation agency declared on Thursday that aspartame, an artificial sweetener widely used in diet drinks and low sugar foods could possibly cause cancer. The declaration by WHO agency of a cancer risk associated with aspartame reflects the first time the prominent international body has weighed in publicly on the effects of nearly ubiquitous artificial sweetener. Aspartame has been a contentious ingredient for decades.”

Let us look at some of the recent scientific publications about this topic of public health importance:

An article published in Indian Journal of Pharmacology entitled 'Artificial sweeteners as a sugar substitute: Are they really safe?'(3) states the following-

“They are claimed to promote weight loss and deemed safe for consumption by diabetics; however, there is inconclusive evidence to support most of their uses and some recent studies even hint that these earlier established benefits regarding non-nutritive sweeteners (NNS) use might not be true. There is a lack of properly designed randomized controlled studies to assess their efficacy in different populations, whereas observational studies often remain confounded due to reverse causality and often yield opposite findings. Pregnant and lactating women, children, diabetics, migraine, and epilepsy patients represent the susceptible population to the adverse effects of NNS-containing products and should use these products with utmost caution. The overall use of NNS remains controversial, and consumers should be amply informed about the potential risks of using them, based on current evidence-based dietary guidelines.”

In yet another article published in the prestigious journal Nature entitled- 'Sugar substitutes linked to obesity' following experiment is given linking artificial sweetener (saccharine) with changes in microbiome which is a very important part of our immunity(4):

"To simulate the real-world situation of people with varying risks of these diseases, the team fed some mice a normal diet, and some a high-fat diet, and spiked their water either with glucose alone, or with glucose and one of the sweeteners, saccharin. The mice fed saccharin developed a marked glucose intolerance compared to those fed only glucose. But when the animals were given antibiotics to kill their gut bacteria, glucose intolerance was prevented. And when the researcher's transplanted faeces from the glucose-intolerant saccharin-fed mice into the guts of mice bred to have sterile intestines, those mice also became glucose intolerant, indicating that saccharin was causing the micro biome to become unhealthy."

There are also few reports about the carcinogenicity of artificial sweeteners, one such report published in Times of India has already been discussed in this article. In another interesting article published in a journal 'The Impact of Artificial Sweeteners on Human Health and Cancer Association: A Comprehensive Clinical Review' the following has been written about this issue(5):

"The use of ASs (artificial sweeteners) has been constantly increasing in recent years. Despite the various uses of ASs, many reports have indicated multiple side effects associated with their use. In our comprehensive review, we demonstrate that ASs can impact various functions of the gastrointestinal, neurologic, and cardiovascular systems. Although multiple studies associate ASs with increased cancer risk, the majority of recent research data, including systematic reviews and meta-analyses, show no link between the use of ASs and cancer risk. However, more long-term prospective studies are needed to better characterize the effect of ASs on human health."

A significant cohort study has been published in Plos Medicine concludes that(6)-

"In this large cohort study artificial sweeteners (especially aspartame and acesulfame-K), which are used in many food and beverage brands worldwide, were associated with increased cancer risk. These findings provide important and novel insights for the ongoing re-evaluation of food additive sweeteners by the European Food Safety Authority and other health agencies globally."

In a book 'Excitotoxins- The taste that kills' by Dr. Russell L. Blaylock M.D., published by Health Press Santa Fe, New Mexico, the author has clearly written that 'Excitotoxins' are the substances which are added to foods and beverages which literally stimulate neurons to death, causing brain damage of various degrees. (7) These excitotoxins can be found in such ingredients as monosodium glutamate (MSG), aspartame, cysteine, hydrolysed protein, and aspartic acid. Dr. Russell raises very pertinent questions about the consumption of these excitotoxins. Following is a quote from this well written book-

"And finally, what if it could be demonstrated that all of these types of chemicals (called excitotoxins) could possibly aggravate or even precipitate many of the neurodegenerative brain diseases such as Parkinson's disease, Huntington's disease, ALS, and Alzheimer's disease? Would you be concerned if you knew that these excitotoxin food additives are a particular risk if you ever had a stroke, brain injury, brain tumor seizure, or have suffered from hypertension, diabetes, meningitis, or viral encephalitis?"

Though the final verdict on the safety/health hazards of artificial sweeteners is not yet out still serious concerns have been raised from various studies.

The author would like to raise following questions regarding the use of these artificial sweeteners in our day-to-day life as well as to prevent such tragic events in future like what happened with the 10 year old Patiala girl:

Q1. Should we not restrict/stop the use of artificial sweeteners in routine food products especially for young children and pregnant women till the future research gives these products a clean chit or proves them hazardous?

Q2. Should we (the health professionals) not encourage young children to preferably consume home-made food as far as possible?

Q3. Should we not check the authenticity and reliability of the restaurants and food joints before ordering through food delivery apps?

Q4. Why should not the topic of food additives including artificial sweeteners and other excitotoxins be taught in detail to medical undergraduates and post graduates, especially in the curriculum of these subjects- Paediatrics, Community Medicine, Obstetrics and Gynaecology, and General Medicine.

“The food you eat can be either the safest and most powerful form of medicine, or the slowest form of poison.”- Ann Wigmore

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