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Aggression and Violence in Perspective of Hypoglycaemia: A Review Analysis

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Abstract

Violence is instinctive to human nature. The human mind is slow to react to peaceful mechanism to conflict resolution but instantly jump to quick redress using violence and aggression as the vehicle. Additionally, there are some inborn errors in genetic, hormonal and nutritional component that may compel the individual to resort to violent means, sometimes provocatively and at other times without adequate stimulus. In the current paper nutritional element emphasizing on hypoglycaemia is reviewed. This particular component is selected because it has medico legal connotation and the trial court have given conflicting opinion on occasions ignoring biochemical basis and preferring on circumstantial ones. Automatism leads to hypoglycaemia which leads to violence which itself is triable and perhaps a mitigator to sentencing.

Key words: *hostility, aggression, violence, hypoglycaemia, tyrosine, under nutrition*

Introduction

Aggression, violence and assault are commonly used words with easily self-defining concept. It is also easy to understand the product and outcome of violence in a reasonable and graded format. It may be equated to religion, philosophical,

sociological, political and biological connotations, and the reader or observer may well rest on the chair because the age-old riddle of why aggression has taken place have been partially solved under these shades of explanation. Solving this task may

be well-nigh easy had it not been for uncomprehending component. One such factor that precipitates violence is hypoglycaemia or lowering of blood sugar level below normal. It triggers violence and the otherwise educated and understanding person loses sanity and assault another person. Medico legally this is termed as sane automatism or *automatism simpliciter*. Under law the court is guided by the medical explanation and testimony of the doctor. This paper shall take a review of the phenomenon termed hypoglycaemia leading to violence ^{1,2,3,4,5}.

Case-based review

The appellant, a diabetic, was charged with theft of a can of coke and some sandwiches. At the time of the offence he was suffering from hypoglycaemia (low blood sugar level due to an excess of insulin) causing to be absent-minded and lacking in full consciousness. He had \$90 in his pocket at the time. The trial judge wrongly held that this gave rise to the defence of insanity. The appellant pleaded guilty and appealed the judge's ruling.

Held

The appeal was allowed and the appellant's conviction was squashed. The automatism was induced by an external factor rather than the internal disease of diabetes. The correct defence, therefore, was non-insane automatism⁵.

Hypoglycaemia is notorious for precipitating aggression. The literature is replete with examples from antiquity to the present.

Qolla Indians of Peru are depicted as "perhaps the meanest and most unlikeable people on the Earth⁶ and *brutos y torpes*, that is, irrationally cruel, uncivilized and dull^{7,8}. Likewise Andean highland Qolla Indians have been cited as having an extreme modal personality configuration dominated by excess of hostility and aggression^{9,10,11}. This can assume a multiplicity of forms, ranging from violent encounters to an exceptionally high homicidal rate¹². Based on this report Bolton has demonstrated a correlation between hypoglycaemia and Qolla aggression, and also noted that hypoglycaemia is a widespread physiological condition in that part of Andean population¹².

Analytically, hypoglycaemia has been suggested as a possible basis for an explanation of ethnic differences in aggression¹³.

In clinical studies involving a large sampling population the author has successfully demonstrated a linkage of 89% (n=600) to hypoglycaemia as highly unstable and 45% of these manifested overt unsocial, asocial and antisocial behaviour¹⁴. Aggressive traits associated with hypoglycaemia were also seen in individuals convicted for homicidal threats and acts, destructiveness and child abuse¹⁵.

Additional feature which could add its own irritating component to aggressiveness is allergic reaction which has the add-on capacity to low blood sugar and this may later manifest as abnormal aggressive behaviour¹⁶.

The exact basis for increased aggressive behaviour is not clear, although it is known that the limbic system is particularly sensitive to it, and that a low

brain glucose level can activate epileptic foci¹⁷. In this context it is worth remembering that brain only stores glucose since it is unable to convert glycogen to glucose. Naturally, the brain is exclusively dependent on blood glucose to meet its requirement.

Finally, gonadal hormones represent an indispensable fuel for aggression, whereas in a more general framework, the action of hypoglycaemia on brain activity may parallel activity in under nutrition in promoting aggression. In some instances highly allergic persons to specific food component have also been reported to respond violently within 30-60 minutes of ingestion¹⁸.

As the last word it would be apt to say that simple hypoglycaemia may not be the sole culprit. It may have the physiological backing of previous life pattern. Hunger, under nutrition in early life, prenatal nutritional deficiency, and an increased intake of l-tyrosine with food are all factors (baked products, vegetable and vegetable products, nut and seed products, legumes and legume products, finfish and shellfish products, poultry, beef etc-rich in tyrosine) that consistently increase aggression in competition setting^{19, 20, 21, 22, 23, 24}.

Conclusion

The review of previous research work done on hypoglycaemia and aggression amply provides evidence in favour of nature's role in amplifying the combative instinct in the face of food deficiency. The courts of law in all countries

understand this phenomenon and favour the accused provided contrary evidence is not overwhelming. Therefore, attention need to be focused on such groups that are perpetually exposed to this devastating calamity be it famine, alcoholism, scarcity in particular food component or need-based switch over to lesser nutrition providing foodstuff to accelerate decimation of violence owing to this factor. The cost-benefit ratio would be immense. Imagine hundreds of cases fought in the court of law on this issue and the amount spent in organizing them be it court, policing, detention in penitentiary etc.

References

1. People v. White, No. 98663 (Cal. Super. Ct. S. F. City, 1979) (unreported). The defendant was allowed to plead diminished capacity due to hypoglycaemia, the "twinkle defence".
2. Lewis: Some PMS symptoms, such as hypoglycaemia, are comparable to ailments that are successfully used under a partial responsibility defence. *Supra* note 100 at 443.
3. Beaumont G. Automatism and hypoglycaemia. *J Forens Legal Med.*, 2007; 14(2): 103-7
4. R v Bringham. Defense of non-insane automatism in criminal law. 1991; *CrimLR* 43.
Available at: <http://e-lawrence.co.uk/Non-insane-automatism.Php>
5. Automatism as a criminal defense. Available at: <http://www.inbrief.co.uk/>

court-proceeding/automatism-as-a-criminal-defense.htm

6. Pelto P. Psychological anthropology. In: Biennial review of anthropology, 1967; edited by A Beals and B Siegel, pp151, Stanford.
7. DeMurua FM. Historia del origen y geneologia real de los reyes Incas del Peru. 1946; Bibl. Missionalia Hispanica.
8. Husain M, Rizvi SJ. The effect of hormones on aggression and violence in humans: forensic control of such undulating behaviour-a review. 1992; J For Med Toxicol., 9(1&2): 33-37.
9. Barnouw V. Culture and Personality. 1963; Homewood, Ill.
10. Barnouw V. An introduction to Anthropology: Ethnology vol. 2. 1972; Homewood, Ill.
11. Harris M. Culture, Man and Nature. New York, 1947.
12. Bolton R. Aggression and hypoglycaemia among the Qolla: A study in psychobiological anthropology. Ethnology; 1973; 12: 227-257.
13. Edgerton RB. The Individual in Culture Adaptation: A study of Four East Africa Peoples, Berkeley; 1971.
14. Frederichs C and Goodman H. Low blood sugar and you. Constellation International, New York, 1969.
15. Wilder J. Sugar Metabolism in its Relation to Criminology. In: Handbook of Correctional Psychology. Edited by: R Lindner and R Seliger, Philosophical Library, New York, 1947; pp 98-129
16. Randolph TG. Human Ecology and Susceptibility to the Chemical Environment. Charles C Thomas, Springfield, Ill. 1962.
17. Ervin FR and Mark H. Behavioural and affective responses to brain stimulation in man. In: Neurological Aspects of Psychopathology. Edited by: Y Zubin and C Shagass, Publ.: Grune & Stratton, New York, 1969; pp54-65.
18. Moyer KE. The physiology of aggression and the implications for aggression control. In: The control of aggression and violence: Cognitive and physiology factors, edited by L Singer, pp. 61-92. Academic Press, New York.
19. Francove S. Effect of protein calorie malnutrition on the development of social behaviour in rats. Dev. Pschybiol., 1973; 6:33-43.
20. Fredericson E. The effect of food deprivation upon competitive and spontaneous combat in C57 black mice. J Psychol., 1950; 29:89-100.
21. Peters DP. Effect of prenatal nutritional deficiency on affiliation and aggression in rats. Physiol. Behav., 1978; 20:359-362.
22. Randt CT, Blizard DA & Friedman E. Early life under nutrition and aggression in two mouse strains. Dev. Pschybiol., 1975; 8:275-279.

23. Rohles FH Jr & Wilson LM. Hunger as a catalyst in aggression. Behaviour, 1973; 48:123-129.
24. Thurmond JB, Lasley SM, Conkin AL & Brown JW. Effect of dietary tyrosine, phenylalanine and tryptophan on aggression in mice. Pharmacol. Biochem. Behav., 1977; 6:475-478.