Letters to the Editor

DID NATURE INTEND US TO DRINK?

Sir,

Ethanol, the intoxicant that has plagued civilization down the ages, is metabolized into acetaldehyde by the enzyme alcohol dehydrogenase. In this connection, a medical student recently posed a humorous but interesting question: "Ethanol does not occur naturally in the body; so, why did Nature provide us with alcohol dehydrogenase unless she meant us to drink?"

A diligent search through the medical library revealed that there are several possible answers to this question. We wish to share these with the readers of the Indian Journal of Psychiatry, for their interest and edification:

1. Ethanol does occur naturally in the body; it is formed in tiny quantities as a normal by-product of the catabolism of carbohydrates. Alcohol dehydrogenase metabolizes this ethanol (McIlwain & Bachelard, 1985).

2. Small quantities of ethanol are also produced by fermentation of sugars by intestinal flora in the gut; alcohol dehydrogenase metabolizes this ethanol, too (Lieber, 1984).

3. Alcohol is a generic term, used to describe aliphatic (straight chain) or aromatic (ringed) compounds with an-(OH) [hydroxy] group. Ethanol is not the only alcohol metabolized by alcohol dehydrogenase; certain other alcohols occur in the body and are metabolized by this enzyme. For example, alcohol dehydrogenase is responsible for the conversion of 11-cis-retinol to 11-cis-retinal (Hubbard & Wald, 1952).

Alcohol dehydrogenase is also involved in the catabolism of catecholamines; it metabolizes 3-methoxy 4-hydroxyphenylethanol to 3-methoxy 4-hydroxy phenylacetaldehyde (McIlwain & Bachelard, 1985).

4. Alcohol dehydrogenase has several other substrates as well, and is involved in the dehydrogenation of steroids, and in the omega oxidation of fatty acids (Lieber, 1984).

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LITHIUM AND HYPOTHYROIDISM

Sir,

A male of 32 years already on lithium maintenance (900 mg per day) for twelve months, came with complaints of lethargy, weakness, tiredness, sleepiness, not liking to do routine work and easy irritability. On examination he had about fifteen kg. weight gain, oedema feet, puffy face, change of voice and coarse dry scaly skin.

On investigation, haemoglobin was 11.0 gm%, serum creatinine 1.6 mg%, blood urea 56 mg%, serum cholesterol 265 mg/dl, TSH 110 mU/ml, T3 0.4 ng/L, T4 4.0 µg/dL, S.G.P.T. 23 I.U./ml and serum lithium 0.6 meq/L of blood. Other investigations and examinations were inconclusive including fundus, echocardiography, ultrasonography of abdomen, E.C.G., serum protein, urine and blood.

A provisional diagnosis of hypothyroidism was made and lithium was stopped. Thyroxine 50 µgm on empty stomach and sodium valproate was started with other symptomatic management.

Periodically patient was investigated and within nine months he lost 10 kg. weight, serum creatinine 0.6 mg% and T.S.H. dropped...
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significantly to 8.0 mU/ml with T₃-T₄ within normal range. Oedema feet, puffiness of face disappeared and patient became asymptomatic.

Again after six months he developed oedema feet and other milder symptoms; T.S.H. was 12.5 mU/ml, T₃=0.6 ng/L and T₄=5.0 µg/dL. Thyroxine dose was raised to 100 µgm. He became asymptomatic in two months under guidance of physician and psychiatrist.

In this particular case it cannot be said with full confidence that hypothyroidism was only because of lithium, quite likely it could have been co-incidental. However, I would suggest that lithium should always be given under close supervision of psychiatrist and prior and periodic thyroid functions must be recorded. Even lithium could have caused irreversible damage to thyroid gland.

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CORDLESS PHONE INDUCED ARTIFACT ON EEG

Sir,

The electroencephalography (EEG) record is presumed to represent only cerebral activity. In reality, it includes activity that is not of cerebral origin. The activity of the brain is the signal of primary concern, and any other activity that appears in the record will deteriorate the brain signal. These undesired brain activities are called artifacts or noise (Saunders, 1979).

It has been noted that high frequency radiation from radio and television transmitters may overload EEG amplifiers and cause them to block. The pens may deflect upward or downward to full excursion and the EEG cannot be recorded. Problems of this type vary with respect to cause. They often occur in intensive care units where electronic devices using radiofrequency carriers are connected to the patient. Hospital paging systems are a frequent source of this class of artifact. Slow activity may appear in the EEG as a result of continuous or intermittent, relatively high intensity radio frequency carriers (Tyner et al., 1985). We are reporting a case of cordless phone induced artifact on EEG.

Mrs. L, a 58 years old lady with complaints of episodic loss of consciousness was sent to EEG laboratory for EEG investigation. During recording, the EEG technologist noted that somebody was talking on a long distance (25 km.) cordless phone outside the EEG lab. which led to full excursions of the electrodes with intermittent bursts of spikes being recorded. This abnormal pattern stopped as soon the person was asked to switch off the cordless phone and the patient continued to have a normal recording. There was no other obvious cause for this artifact and it was well correlated with the switching on and off the cordless phone.

At times it is difficult for even the most experienced technologist or electroencephalographer to distinguish between the fact, which is the EEG signal and which is the artifact. Because artifacts may mimic abnormality, it is imperative that the sources of artifacts be identified accurately. An artifact and its cause usually are obvious to the technologist at the time of the recording but when the EEG is being interpreted (often long after the technologist has gone for the day), the record may take on an entirely different appearance, in a different setting, under a different pair of eyes. Therefore it is essential that artifacts be clearly identified by the technologist and labeled during the recording. Consultation with the manufacturer of the EEG instrument and with hospital biomedical engineers may be necessary to solve this specific problem. Shielding may be necessary if the artifact cannot be reduced by other means (MacGillivray et al., 1974). However, this should be a method of last resort because of the expense involved.

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