

HYPOGLYCAEMIC TETANY – A CASE REPORT

V Anantharaman

SYNOPSIS

Hypoglycaemic is a not uncommon condition seen in A&E Departments. A patient presenting at the A&E Dept, SGH with severe bilateral carpopedal spasm was found to be hypoglycaemic. This association has not been reported previously and an index of suspicion of hypoglycaemia is warranted in similar patients not responding to conventional treatment of carpopedal spasm.

SING MED J. 1988; 29: 524 – 525

INTRODUCTION

When we were medical students, and later as doctors we were not taught to consider hypoglycaemia as a cause or a contributory factor in carpopedal spasm. On the other hand, for a patient presenting in coma, we were taught that hypoglycaemia had to be excluded early. That the two could occur together was totally unexpected until we saw the patient described in this case report.

CASE REPORT

A 36 year old Filipino female, J.N., presented to the Accident & Emergency Department of the Singapore General Hospital.

The patient, a maidservant, had a quarrel with her employer early one afternoon. She had subsequently felt homesick and depressed. It is not known whether she had swallowed any pills. At 1530 hours on that day she was found unconscious at her place of employment. An ambulance was summoned immediately and the patient was sent to the Singapore General Hospital.

On arrival at the A&E Department at 1610 hours, she was noted to be unconscious and completely unresponsive (Glasgow Coma Scale 3). Her heart rate was 64 per minute and regular. Her blood pressure was 110/60 mm Hg. She was hyperventilating with short shallow breaths at a rate of 30 breaths per minute. Her pupils were mildly dilated and reactive. There was no odour of alcohol. Mild sweatiness was noted over the chest. Her breath sounds were normal with no crackles nor wheezes. The most obvious characteristic of the patient was a severe carpopedal spasm. Chovstek's sign was negative.

A diagnosis of Hyperventilation-induced Tetany was made. The hyperventilation was thought to be an acute anxiety reaction. The patient did not respond to a plastic bag placed over her mouth and nose and was given 10 ml of intravenous 10% Calcium Chloride slowly over 10 minutes, at the end of which complete relief of the carpopedal spasm was noted.

The patient, however, continued to remain totally unresponsive. She bore a staring expression. She had no neck stiffness. Her reflexes were normal and her plantar responses were flexor. There was no wasting of her extremities. She continued to hyperventilate. In view of the persistent hyperventilation, then thought to be due to an acute anxiety reaction, she was given 10 mg of intravenous diazepam. Ten minutes later, she had stopped hyperventilating, though still unresponsive.

Owing to her not waking up, a rapid blood glucose estimation was carried out with an Ames Hypocount Machine. This gave a reading of 30 mg/dl. The patient had thus been hypoglycemic. She was immediately given 50 ml of 50% Dextrose intravenously and observed for a further 10 minutes with no change in her conscious level. The Glasgow Coma Scale remained at 3. Miss J.N. was admitted to the Medical Ward.

At 1700 hours, when examined in the medical ward, she was still unconscious, but responsive to pain (Glasgow Coma Scale 6). Her blood sugar level was then 155 mg/dl. When reviewed at 1730 hours, she was conscious, but depressed and able but unwilling to give a history. She had no neurological deficits on physical examination. Her respiratory rate was 14 per minute. She was alert.

While in the ward, she was noted to have an overnight fasting blood sugar level of 46 mg/dl.

DISCUSSION

This young lady was the first patient we had noted to be hypoglycaemic while having an episode of hyperventilation-induced tetany. We are not aware of any reports of such a clearly defined instance. A high proportion of patients undergoing insulin coma therapy (1,3) for psychotic states have been reported to experience sensations of parasthesias and numbness in both extremities with facial parasthesias

Accident and Emergency Department
Singapore General Hospital
Outram Road
Singapore 0316

V Anantharaman, MBBS, MRCP(UK) Registrar

and blurring of vision. There has however been no documentation of associated hyperventilation or tetany. No definite cause has previously been elucidated for these symptoms in patients with hypoglycaemia, though damage to peripheral nerves (1,2) and, to thalamic structures have been postulated(1).

Our patient, already emotionally highly strung after a quarrel with her employer had, for reasons not yet determined become hypoglycaemic during which she may have felt dizzy, panicked and developed an acute anxiety reaction resulting in hyperventilation, respiratory alkalosis and the severe tetany that was witnessed.

It is possible that hypoglycaemia initially excites the brain-stem's respiratory centre to result in hyperventilation. The intravenous diazepam is likely to have suppressed the excited respiratory centre thus controlling the hyperventilation. On the other hand diazepam, by its anxiolytic effect, could have led to the relief of hyperventilation without any effect on the

brain-stem.

The intravenous diazepam is also likely to have delayed the return of the patient's conscious state by about 45 minutes.

CONCLUSION

Acute hypoglycaemia of rapid onset may, either by an effect on the brain-stem respiratory centre or by causing an acute anxiety reaction, present as tetany. An index of suspicion of hypoglycaemia is important, especially if the patient does not respond to the conventional therapy of such acute anxiety reactions.

ACKNOWLEDGEMENT

The author would like to thank Dr Wong Kuo Weng for his loan of articles on the above topic.

REFERENCES

1. Ziegler KD: Minor neurological signs and symptoms following insulin coma therapy. *J Nervous Mental Disease* 1954; 12: 75-8.
2. Mulder W, Bastron A, Lambert H: Hyperinsulin neuropathy, *Neurology* 1956; 6: 627-35.
3. Rosner L, Elstad R: The neuropathy of hypoglycaemia *neurology* 1964; 14: 1-6.