Case series of Non Ketotic Hyperglycemia presenting as Focal Seizures

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Background and Aim :

- Nonketotic hyperglycemia (NKH) is a rare but serious complication of uncontrolled diabetes mellitus. This condition presents with a clinical syndrome consisting of profound hyperglycemia, hyperosmolality, and dehydration.
- Infrequently, the patients also present with seizure activity. The most common types of seizures observed in this condition are focal seizures, as opposed to the generalized seizures observed in hypoglycemia-induced seizures.

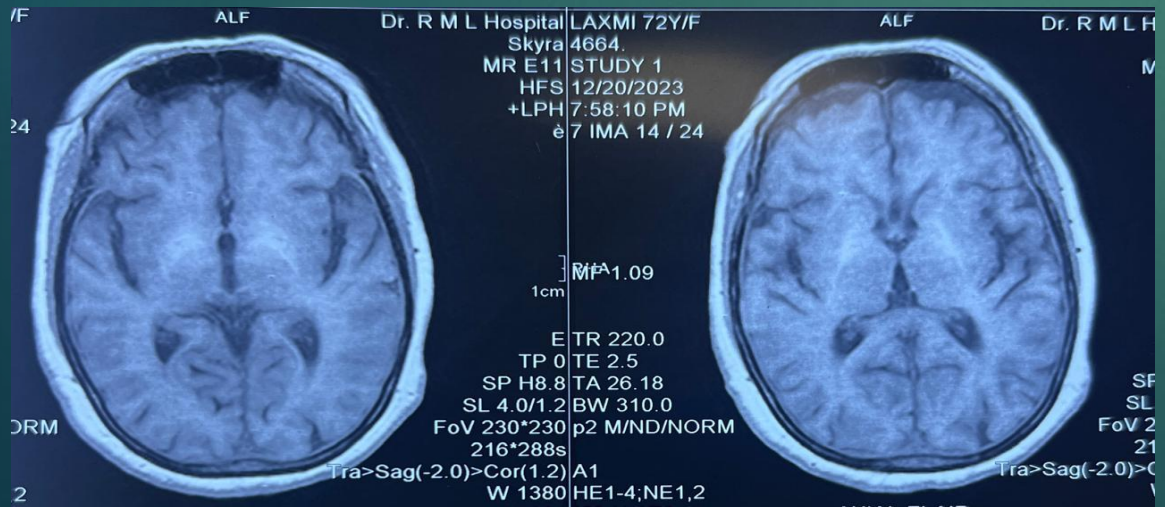
Case Reports:

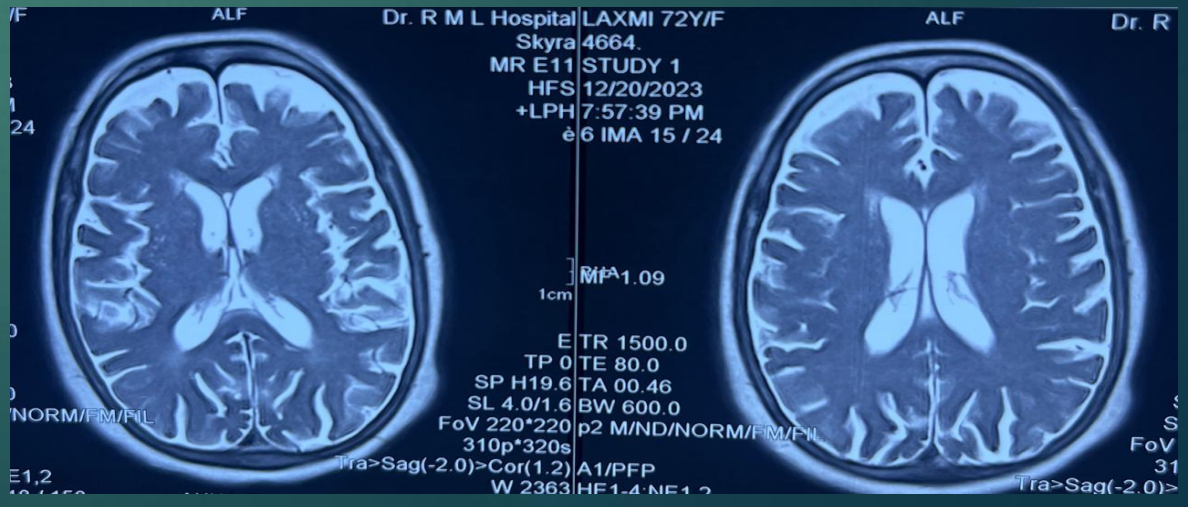
- Four patients presented to emergency with focal aware seizures. There was tonic posturing involving the face and upper limb with jerky movements lasting for 1-2 minutes. Patients were fully conscious and oriented through out the episode and there was no post ictal confusion.
- There is clustering of seizures and associated with Todds palsy in all the patients. Hyperglycemia with no previous history of diabetes seen in all the four patients and one patient has history of chronic steroids abuse.

Investigations:

- Sugars were elevated in all the patients.(>500 mg/dl)
- Serum and urine ketones were negative in all the patients.
- Routine investigations were normal in all the patients.
- NCCT Head was done which was normal. MRI Brain was done in three patients, out of which two patients has shown symmetrical T1 hyperintensity involving bilateral corpus striatum and one patient has shown small vessel ischemic changes.

MRI BRAIN





Treatment:

- Patients were treated with adequate hydration and Insulin infusion.
- Short course of antiepileptics were given. Seizures were controlled in all the patients after controlling of sugars.

Discussion:

- NKH related seizures can be diagnosed when high blood glucose accompanied with normal plasma osmolality and negative urine ketones occurs.
- Increased GABA metabolism leading to decreased levels of GABA in NKH related seizures.
- Adequate hydration and Insulin remains the mainstay of treatment. Seizures were controlled with the resolution of hyperglycemia.

Conclusion:

- NKH-related seizures should be suspected in adults with new-onset clustering focal seizures, even in the absence of a history of DM.
- Typical focal changes on brain MRI, while not pathognomonic, can drive the clinical diagnosis.

References:

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