MAK HILL Publications International Journal of Tropical Medicine

Case Study
doi: 10.59218/makijtm.2023.3.57.58

OPEN ACCESS

Key Words
Diabetic, ketoacidosis, T2DM patient, presentation

Corresponding Author
Satyam Kundu,
Department of General Medicine, KPC Medical College, India
satyamkundu.sk@gmail.com

Author Designation
[1-4, 5, 7]PGT
[6]Assistant professor

Received: 30 October 2023
Accepted: 22 November 2023
Published: 30 November 2023

Citation: Nayan Paul, Nabanita Mondal, Satyam Kundu, Sourja Kanti Ghosh, Firdaus Ahmed, Nashim Akhter and Mainak Mandal,. Diabetic Ketoacidosis: An atypical presentation of Dengue fever in a T2DM patient. Int. J. Trop. Med., 18: 57-58, doi: 10.59218/makijtm. 2023.3.57.58

Diabetic Ketoacidosis: An Atypical Presentation of Dengue Fever in a T2DM Patient

[1]Nayan Paul, [2]Nabanita Mondal, [3]Satyam Kundu, [4]Sourja Kanti Ghosh, [5]Firdaus Ahmed, [6]Nashim Akhter and [7]Mainak Mandal

[1-7]Department of General Medicine, KPC Medical College, India

ABSTRACT

Though Diabetes Ketoacidosis (DKA) is a dreaded complication of Type 1 Diabetes Mellitus (T1DM), literature shows its prevalence in Type 2 Diabetes Mellitus (T2DM) too. In most cases, the trigger is an infection. Dengue Fever (DF) like other viral infections can also precipitate DKA in both types 1 and type 2 diabetes mellitus patients as there is an increased release of pro-inflammatory cytokines by various mechanisms which further increases the risk of plasma leakage. Volume status assessment can be misguided by monitoring the urine output as polyuria may persist even during shock due to hyperglycemia in dengue. In-fact, acidosis may be produced by shock and ketosis but it also may not truly reflect the shock severity. Here we report a case of Dengue Fever (DF), in critical phase, precipitating DKA in a middle-aged T2DM patient.

CASE PRESENTATION

A 44 year old female, home-maker, resident of South Kolkata presented to us in an unconscious state with alleged history of fever for three days. There was also H/O pain abdomen and multiple episodes of vomiting, oliguria with high coloured urine for a day. Patient is a known T2DM, on oral hypoglycemic agents (SGLT2 inhibitor and Metformin). No similar episodes were reported in the past. Her father was diabetic (T2DM). Menstrual history was regular with a 28 day cycle. No history of smoking or substance abuse was noted. On admission, her GCS-E1 V1 M3, BP-90/60, Febrile, Tachypnea and Tachycardia along with rapid and shallow acidotic breathing. Her SpO2 was 99% @ room air, CBG was 495 mg dL^{-1}, Severly dehydrated, non-icteric and no visible pallor. Per abdomen was soft, no rigidity was present. CNS examination revealed no neck rigidity, pupil Bilateral reacting with Bilateral planter flexors, without any focal neurodeficit. Other system examination were unremarkable.

Her blood parameters revealed Hb% 12.7gm%, Hct 39.5%, TLC 3580/cumm (N_{69} L_{26}), Platelet 0.45lacs/cumm, ESR 31mm in 1st HR, CRP 24. Her blood gas analysis also showed High anion gap metabolic acidosis (HAGMA) where pH 7.150, pCO_2 13.2 mmHg, pO_2 135, Lactate 10.9, HCO_3 8 mmol L^{-1}, BE-24.3, Anion gap 22, KFT within normal limits, serum electrolytes- Hyperkalemia with K-5.8mmol L^{-1}, AST 352 U L^{-1}, ALT 258 U L^{-1}, Urine Dip-stick for Ketone bodies +++, Glucose +++. Urine and aerobic blood culture showed no pathogenic organism, MP, MPDA , Typhi dot M, Scrub Typhus IgM, Leptospira IgM were non reactive but Dengue NS1 antigen was reactive (sample value 177), Dengue IgM was also reactive on Day 6 of fever. COVID-19 RTPCR was non reactive, Procalcitonin <0.1ng mL^{-1}, Chest xray, Echocardiogram were within normal limits. Urine routine examination revealed pH 6.0, Glucose +, Ketone body detected, pus cell 1-2/hpf. NCCT brain and CSF study was done to rule out CNS infections which also revealed no abnormality. Patient was closely monitored for the developing complications and was managed conservatively as per guidelines. Patient responded well with complete recovery and was discharged at Day 13 with advice to follow up at OPD.

DISCUSSIONS AND CONCLUSION

We report the case of this lady who presented to us during the febrile period of dengue fever in an unconscious state. Hyperglycemia, hypotension, altered mental status, rapid shallow acidotic breathing and HAGMA on ABG along with ketonuria helped us to substantiate the diagnosis of Diabetic Ketoacidosis. Literature revealed it's prevalence in Type 2 diabetes mellitus patients too.[1] Furthermore, the rarity of this coincidence and unexpected challenges in its management may inspire physicians. The total body water deficit in a DKA patients is about 100 ml/kg of Body-weight and the fluid loss gets even higher in dengue patients due to plasma leakage[2] As there is hyperglycemia, so the volume status assessment doesn't solely depend on the urine output[3]. Infact the severity of shock may also get masked. Hence, early recognition of DKA in dengue fever is crucial in preventing complications related to both[4].

Every clinician must anticipate DKA with disproportionately high urine output during dengue infection even though it's a rare. Vitals along with urine output should be monitored scrupulously to arrest any developing complication at its earliest.

REFERENCES

1. Lizzo, J.M., A. Goyal and V. Gupta, 2022. Adult diabetic ketoacidosis., https://www.ncbi.nlm.nih.gov/books/NBK560723/
2. Lertdetkajorn, K. and C. Sriphrapradang, 2018. Management of diabetic ketoacidosis with dengue hemorrhagic fever. Cureus, Vol. 10. 10.7759/cureus.3336
3. Dalugama, C. and I.B. Gawarammana, 2017. Dengue hemorrhagic fever complicated with transient diabetic ketoacidosis: A case report. J. Med. Case Rep., Vol. 11. 10.1186/s13256-017-1476-z
4. Thadchanamoorthy, V. and K. Dayasiri, 2020. A case report of dengue hemorrhagic fever complicated with diabetic ketoacidosis in a child: Challenges in clinical management. BMC, Pediatr., Vol. 20. 10.1186/s12887-020-02300-9