

## Headache in diabetes

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### Abstract

Diabetes can present with multiple manifestations and subjective symptoms. One of these is headache. Headache can be a clinical presentation of diabetes per se, its complications or its comorbidities. It can also point towards certain causes of secondary diabetes, as well as iatrogenic issues. This communication lists the various causes of headache in diabetes, so as to help the clinician keep a high index of vigilance.

**Keywords:** Adverse drug reactions, hyperglycaemia, hypoglycaemia, neurology, ophthalmology, psychiatry, psychology.

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### Introduction

Diabetes presents with myriad manifestations, involving every organ-system of the body.<sup>1</sup> Many symptoms are subjective, rather than specific, and warrant a detailed clinical evaluation. One such frequently encountered complaint is headache.<sup>2</sup> Headache is defined as a pain in the head and/or face. Headaches can be caused by various reasons, and can occur in any person, irrespective of glycaemic status.<sup>3</sup>

### Causes related to diabetes

Certain causes of headache, are specific to diabetes.<sup>4</sup> (Table). Hyperglycaemia and hypoglycaemia can both present as painful sensation over the head and face. Specific neurological complications, like occipital or trigeminal neuralgia, may occur in persons with diabetes. Vascular, as well as infective complications such as hypertension and transient ischaemic attacks are more common in diabetes. So are episodes of migraine and seizures, which may present with headache. Diabetes is also associated with poor physical conditioning and posture, as well as psychological ill-health and

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**Table:** Headache in diabetes.

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| • Due to diabetes per se                        |
| o Hyperglycaemia                                |
| o Occipital neuralgia                           |
| • Due to vascular complications                 |
| o Accelerated hypertension                      |
| o Migraine                                      |
| o Pre-ictal state                               |
| o TIA (transient ischaemic attack)              |
| • Due to infective complications                |
| o Meningitis                                    |
| o Encephalitis                                  |
| • Due to ophthalmologic causes                  |
| o Retinopathy                                   |
| o Glaucoma                                      |
| o Cataract                                      |
| o Retinal migraine                              |
| • Due to diabetes therapy                       |
| o Hypoglycaemia                                 |
| o Dehydration/hyponatraemia                     |
| o Keto headache (on ketodiet)                   |
| o GLP1RA use                                    |
| o Calcium channel blocker use                   |
| o Clonidine withdrawal                          |
| o Beta blocker withdrawal                       |
| • Due to comorbidity                            |
| o All causes of headache                        |
| o Cervical spondylosis                          |
| o Poor posture; poor physical conditioning      |
| • Due to cause of secondary diabetes            |
| o Pituitary tumor-acromegaly, Cushing's disease |
| o Pheochromocytoma                              |
| • Due to psychosocial factors                   |
| o Stress headache                               |
| o Cost of therapy                               |

suboptimal coping. These too, can be associated with headache.

At times, the cause of secondary diabetes, such as pituitary or adrenal tumours may present with hyperglycaemia and headache simultaneously. More frequently, the cause of headache in diabetes is iatrogenic. Glucose-lowering drugs and blood pressure-lowering drugs can cause hypoglycaemia, dehydration or dyselectrolytaemia, thus leading to headache. At the same time, sudden withdrawal of certain drugs like can also precipitate headache.

## Summary

Headache is a commonly encountered symptom. Persons with diabetes who present with headache should be evaluated for all possible causes, as per the clinical situation. Specifically, one must rule out the diabetes-specific causes discussed here, keeping a high index of clinical suspicion.

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