Association of Hypoglycemia and Cognitive Deficits in Older Patients: A Family Medicine Clinic's Perspective

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BACKGROUND

Current guidelines suggest that older adults with diabetes and cognitive impairment should have less-stringent glycemic goals than their healthier counterparts. While healthier individuals with diabetes should strive to maintain a goal hemoglobin A1C of less than 7%, those with cognitive impairment should maintain a goal of less than 8%. Guidelines also suggest that individuals who may become cognitively impaired should be identified as early as possible. However, practitioners in a clinic may have difficulty identifying those individuals.

RESEARCH HYPOTHESIS

Practitioners in a clinic may have difficulty identifying individuals needing lower glycemic target goals if such cognitive impairment has not yet been identified. The purpose of this pilot project is to identify associations among hemoglobin A1C, medication therapy that may increase hypoglycemia, number of years having diabetes, and cognitive impairment.

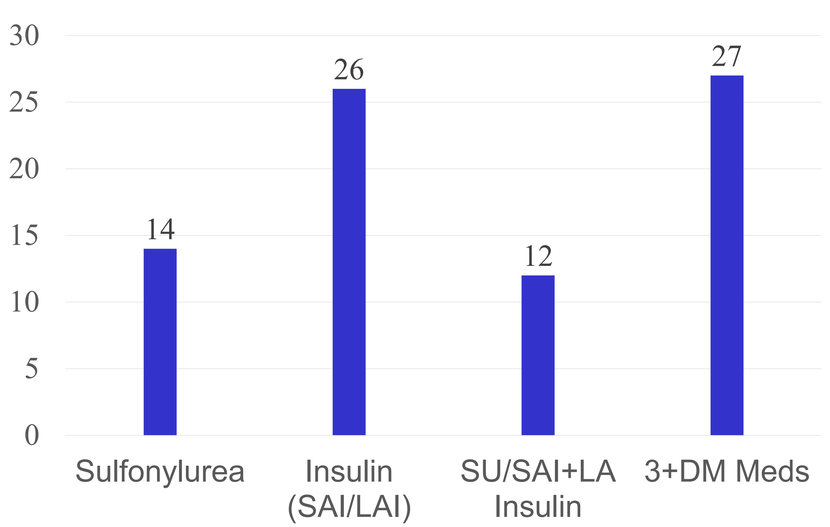
METHODS

This study took place at the University of Mississippi Medical Center Family Medicine Clinic. In this clinic, a chart review was conducted of individuals of 65 years of age or older with diabetes that had been seen at the clinic at least one time from January 2023 to June 2023. The patients of five participating providers at the clinic were included. Patients were not included if they already had a diagnosis of Alzheimer's or any other diagnosis that suggested cognitive impairment. Data was collected during that time period for the following factors: demographic data, hemoglobin A1C, number of years with diabetes, medication therapy that could increase the risk of cognitive deficits, and results of a questionnaire (Mini-Mental Status Exam) for cognitive impairment.

PRELIMINARY RESULTS

PATIENT DEMOGRAPHICS

TOTAL N=109	AGE	A1C	# YEARS w/ DIABETES	M/F	Ethnicity
Average	71.6 years	7.0%	6.6 years	32% male	82% African American
Standard deviation	5.7 years	1.6%	2.5 years	68% female	18% Caucasian



SAI = Short Acting Insulin

LAI = Long Acting Insulin

RESULTS PENDING

Mini-Mental State Examination (MMSE)

Patient's Name:_____ Date:_____

Instructions: Ask the questions in the order listed.
Score one point for each correct response within each question or activity.

Maximum Score	Patient's Score	Questions
5		"What is the year? Season? Date? Day of the week? Month?"
5		"Where are we now: State? County? Town/city? Hospital? Floor?"
3		The examiner names three unrelated objects clearly and slowly, then asks the patient to name all three of them. The patient's response is used for scoring. The examiner repeats them until patient learns all of them, if possible. Number of trials: _____
5		"I would like you to count backward from 100 by sevens." (93, 86, 79,72, 65, ...) Stop after five answers. Alternative: "Spell WORLD backwards." (D-L-R-O-W)
3		"Earlier I told you the names of three things. Can you tell me what those were?"
2		Show the patient two simple objects, such as a wristwatch and a pencil, and ask the patient to name them.
1		"Repeat the phrase: 'No ifs, ands, or buts.'"
3		"Take the paper in your right hand, fold it in half, and put it on the floor." (The examiner gives the patient a piece of blank paper.)
1		"Please read this and do what it says." (Written instruction is "Close your eyes.")
1		"Make up and write a sentence about anything." (This sentence must contain a noun and a verb.)
1		"Please copy this picture." (The examiner gives the patient a blank piece of paper and asks him/her to draw the symbol below. All 10 angles must be present and two must intersect.)
30		**TOTAL**

CONCLUSIONS

Identification of persons with diabetes who have cognitive impairment is important for reducing further sequalae that could lead to more impairment. However, for patients who do not yet have cognitive impairment – especially for the older population – it is important to identify early in treatment whether they are likely to become impaired. Factors such as hemoglobin A1C, number of years with diabetes, inclusion of multiple medications for diabetes and/or diabetes medications that may increase hypoglycemia could correlate with subsequent cognitive impairment. Finding a correlation of one or more of these factors with baseline and then subsequent MMSE testing may assist in this identification.

DISCLOSURES

The authors have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.