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MEETING ABSTRACT Open Access

Dietary glycemic assessment and type of lens opacity in patients with age-related cataract

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Objective

To investigate dietary carbohydrate intake, glycemic index and glycemic load and type of lens opacity in patients with age-related cataract.

Materials and methods

This was an exploratory cross-sectional study, carried out at the Outpatient Clinics of Nutrition and Ophthalmology at the Federal University of Bahia, Salvador-Bahia, Brazil. Seventy eight patients, of both genders, with age-related cataract, participated. All patients underwent nutritional, clinical and ophthalmological assessment. Type of lens opacity was determined following Lens Opacity Classification System – LOCS III – criteria. Clinical data regarding fasting glucose, diabetes diagnosis and hypertension were collected from medical records. Participants answered two

Variables	N(%)
Age	
65 years or less	31(39.7)
Older than 65 years	47(60.3)
Sex	
Women	38(48.7)
Men	40(51.3)
Schooling	
≤ 4 years	34(43.6)
5 – 8 years	34(43.6)
9 – 12 years	07(9.0)
≥ 12 years	03(3.8)
Monthly income	
≤ 1 M.W[a]	45(57.7)
>1 M.W [a]	33(42.3)
Lifestyle	
Alcohol drinkers	21(26.9)
Tobacco smokers	09(11.5)
Regular physical activity	13(16.7)
Clinical data	
Diabetes	30(38.5)
Hypertension	44(56.4)
Hyperglycemia	33(42.3)
Race	
White	13(16.7)
Black	30(38.5)
Brown	34(43.6)
Yellow	00(0.0)
Indigenous	01(1.3)

a. M.W .: minimum wage, around $250-270 between the years of 2013/2014
[b]Fasting blood glucose >100mg/dL

Figure 1 Sociodemographic, clinical and lifestyle characteristics of 78 patients with age-related cataract.

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	Nuclear			Cortical			SCP[c]		
	Yes n(%)	No n(%)	p-value	Yes n(%)	No n(%)	p-valor	Yes n(%)	No n(%)	p-value
Hyperglycemia									
No	17(37,0)	29(63,0)	0,416[b]	24(52,2)	22(47,8)	0,016[b†]	10(21,7)	36(78,3)	0,009[b†]
Yes[a]	09(28,1)	23(71,9)		08(25,0)	24(75,0)		16(50,0)	16(50,0)	
Diabetes									
No	31(63,3)	18(36,7)	0,407[b]	22(44,9)	27(55,1)	0,366[b]	12(24,5)	37(75,5)	0,031[b†]
Yes	21(72,4)	08(27,6)		10(34,5)	19(65,5)		14(48,3)	15(51,7)	

[a]>100mg/dL (ADA, 2013)
[b]Chi-Square Test
[c]PSC = Posterior Subcapsular Cataract
† Statistically significant association, p-value < 0,05.

Figure 2 Hyperglycemia and diabetes diagnoses by type of lens opacity in 78 patients with age-related cataract.

Variables	N(%)
Carbohydrate (% of TEI)	
Low (< 45)	7 (9.0)
Adequate (45-65)	65 (83.3)
High (> 65)	6 (7.7)
Global Glycemic Index	
Low (≤55%)	27(34,6)
Moderate (> 56% ≤ 69%)	49(62.3)
High (≥ 70%)	02 (2.6)
Global Glycemic Load	
Low (< 80)	11(14.1)
Moderate (≥ 80 ≤ 120)	26 (33.3)
High (> 120)	41 (52.6)

TEI = total energy intake

Figure 3 Dietary glycemic assessment of 78 patients with age-related cataract.

	Nuclear			Cortical			PSC[d]		
	Yes n(%)	No n(%)	p-value	Yes n(%)	No n(%)	p-value	Yes n(%)	No n(%)	p-value
Glycemic Index									
Low	20(74,1)	07(25,9)	0,313[a]	11(40,7)	16(59,3)	0,970[a]	09(33,3)	18(66,7)	1,000[a]
Moderate/High	32(62,7)	19(37,3)		21(41,2)	30(58,8)		17(33,3)	34(66,7)	
Glycemic Load									
Low	06(54,5)	05(45,5)	0,491[b]	02(18,2)	09(81,8)	0,113[b]	06(54,5)	05(45,5)	0,165[b]
Moderate/High	46(68,7)	21(31,3)		30(44,8)	37(55,2)		20(29,9)	47(70,1)	
Carbohydrate Intake									
< 1st tertile	18(69,2)	08(30,8)	1,000[c]	09(34,6)	17(65,4)	0,263[c]	11(42,3)	15(57,7)	0,242[c]
1st tertile – 2nd tertile	16(61,5)	10(38,5)		10(38,5)	16(61,5)		08(30,8)	18(69,2)	
> 2nd tertile	18(69,2)	08(30,8)		13(50,0)	13(50,0)		07(26,9)	19(73,1)	

[a]Chi-Square Test
[b]Fisher's Exact Test
[c]Linear Trend Chi-Square Test
[d]PSC = Posterior Subcapsular Cataract

Figure 4 Glycemic Index, glycemic load and total carbohydrate intake among different types of lens opacity in 78 patients with age-related cataract.

24h-dietary recall. Global dietary carbohydrate intake (CHO), glycemic index (GI) and glycemic load (GL) were estimated.

Results

Most patients had adequate intake of CHO (83.3%), although presenting moderate dietary GI and high dietary GL (62.3% and 52.6%, respectively). No differences were observed in the distribution of these features in relation to the types of lens opacity (p> 0.05). The presence of posterior subcapsular cataract type (PSC) was higher among patients with hyperglycemia (p=0.009) and diabetes (p=0.031).

Conclusion

Considering the high prevalence of PSC cataract among those with abnormal blood glucose, nutritional attention should be paid to the quality of dietary carbohydrates in this population.

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