Journal for Research in Applied Sciences and Biotechnology

ISSN: 2583-4053

Volume-3 Issue-1 || February 2024 || PP. 165-171

www.jrasb.com

https://doi.org/10.55544/jrasb.3.1.27

Evaluation of Impact of Overweight BMI, High Triglyceride, Total Cholesterol, Elevated SBP and High Pulse Rate on Cognitive Ability of Undergraduates Medical Students

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www.jrasb.com || Vol. 3 No. 1 (2024): February Issue

Received: 30-01-2024	**Revised:** 03-02-2024	**Accepted:** 05-02-2024

ABSTRACT

Introduction: Cognitive abilities have been the focus of behavior investigations for decades. Cognitive impairment share many common risk factors, such as hypertension, elevated cholesterol, hyperglycemia, and obesity are all associated with longitudinal declines in cognitive function and dementia. Several study's analyzed the link between cholesterol levels and the development of dementia. Studys suggest that high levels of a specific sort of cholesterol (HDL) in blood wore associated with an increased risk of developing dementia. As well as high cholesterol also plays a role in the accumulation of amyloid beta peptides, which accelerates the development of cognitive impairment. We investigated correlation and impact of high TG, TC, Overweight BMI, Elevated SBP and High pulse rate on cognitive abilities from 386 participants on 59 top 10 undergraduate medical students.

Objective: This study aimed to determine and evaluate the correlation and impact of high TG, TC, Overweight BMI, and Elevated SBP factors on cognitive abilities of top 10 undergraduated medical students in Ahmad Shah Abdali Higher Education Institute of Khost province of Afghanistan.

Method and Materials: It is prospective descriptive cross sectional study, on 59 top 10 undergraduated medical students in Ahmad Shah Abdali Higher Education Institute of Khost province from 2023/ Oct / 12 to 2023/ Nov / 02. The including parameters were TG, TC, BMI, SBP and Pulse rate of all 386 participants under study that recorded in computer special format. TG, TC, BMI, SBP and Pulse rate are done by special regents, micro lab and cardiomonetor. Recorded findings processing, comparison and evaluation results have been identified by IBM SPSS-23 version.

Results: The study was conducted during (20) days on 386 undergraduated medical students in Ahmad shah Abdali Higher Education Institute of Khost province. Initially we described all male participants according to age. At the current study all male participants were with (mean age: 23.14 ± 3.68; range: 20-45 years). All participants of this study were from all (1st, 2nd, 3rd, 4th, 5th and 6th) classes. Statistic description of all participants, according to TG, TC, BMI, SBP and Pulse rate shows that Normal healthy TG range<150mg/dL: was more low 3(0.78%). Borderline TG = 150-199mg/dL; was more prevalent 306(79.27%) and High TG level =200-499mg/dL; was 77(19.94%). The normal healthy TC range<150mg/dL: was more low 3(0.78%). Borderline TC = 150-199mg/dL; was more prevalent 306(79.27%) and High TC level =200-499mg/dL; was 77(19.94%). The Healthy weight range BMI= (18.5-24.9) was 219(56.74%). Overweight range BMI (25.0-29.9) was 114(29.53%). Obese range BMI≥ (30.0) was 29(7.51%) and underweight <18.5: was 23(5.96%). The normal SBP= (120-139mmHg) was 374(96.89%), Elevated SBP≥ (140 mmHg) was 12(3.11%). The normal range of pulse rate (60-100bpm) was 353(91.45%). Bradycardia< (60bpm) was 6(1.55%) and tachycardia> (100bpm) was 27(7.0%). In the second part of this study we described all above parameters in the group of all 59 top 10 participants students for comparative outcomes. Statistic description of 59 top 10 participants, according to Age, TG, TC, BMI, SBP and Pulse rate shows that at the current study top 10 participants were with (mean age 23.40± 2.78; range: 18-32 years). Normal healthy TG range<150mg/dL: was 0(0%). Borderline TG = 150-199mg/dL; was more prevalent 54(91.53%) and High TG level =200-499mg/dL; was 5(8.47). The normal healthy TC range<150mg/dL: was more prevalent 55(93.22%). Borderline TC = 150-199mg/dL; was low 4(6.78%) and High TC level =200-499mg/dL; was 0(0%). The Healthy weight range BMI= (18.5-24.9) was 33(55.93%). Overweight range BMI (25.0-29.9) was 18(30.51%), obese range BMI≥ (30.0) was 5(8.47%) and underweight <18.5:

Journal for Research in Applied Sciences and Biotechnology
www.jrasb.com

ISSN: 2583-4053
Volume-3 Issue-1 || February 2024 || PP. 165-171
https://doi.org/10.55544/jrasb.3.1.27

was 3(5.08%). The normal SBP= (120-139mmHg) was more prevalent 57(96.61%), Elevated SBP≥ (140 mmHg) was low 2(3.39%). The normal range of pulse rate (60-100bpm) was 49(83.05%).Bradycardia< (60bpm) was 1(1.69%) and tachycardia> (100bpm) was 9(15.25%). Pearson correlation between SBP and Weight is at the 0.01 level significant, (P<0.01). Pearson correlation between DBP and Pulse rate is at the 0.01 level significant, (P<0.00). Pearson correlation between TC and Weight is at the 0.05 level significant, (P<0.02). Pearson correlation between TG and Roll number is at the 0.01 level significant, (P<0.01). Pearson correlation between SBP and Roll number is at the 0.05 level significant, (P<0.04). Pearson correlation between Height and BMI is at the 0.01 level significant, (P=0.00). Pearson correlation between Weight and BMI is at the 0.01 level significant, (P=0.00). Pearson correlation between SBP and BMI is at the 0.01 level significant, (P=0.00).
Conclusion: Overall, findings of our study indicated that, high TG, TC, Overweight range BMI, and elevated SBP have significant correlation with cognitive ability of undergraduated students. However, this issue needs to further investigations to confirm these findings.

Keywords- Cognitive ability, TG, TC, BMI, SBP, Pulse rate, Khost.

I. INTRODUCTION

While body mass index (BMI) is higher in black compared to white persons, little is known about BMI and change in cognition in cohorts with a large proportion of blacks. Late-life lower BMI relates to faster rates of decline in cognition, specifically semantic memory and episodic memory, in both blacks and whites. The effect of BMI on cognition appears to be similar in both racial groups [1].

The burden of cognitive disorders is huge and still growing, however the etiology and the degree of cognitive impairment vary considerably. Neurodegenerative and vascular mechanisms were most frequently assessed in patients with dementia [2].

High blood pressure has been associated with an increased risk of developing cognitive impairment. However, this relationship is unclear. The studies results underline that higher blood pressure is associated with a higher risk of cognitive decline in people without dementia or stroke [3].

Given the increase in the aging population and thus in the prevalence of dementia, the identification of protective factors against cognitive decline is necessary. Study's findings indicated that the association between changes in BMI and cognitive functioning was modified by age. Weight management may have the potential to delay cognitive decline in older adults [4, 11 and 12].

Higher visit-to-visit cholesterol has been associated with cognitive decline. However, the association between long-term increase or decrease in cholesterol and cognitive decline remains unclear. A longitudinal increase in NHDL-C may be protective for cognition in females or individuals without cardiovascular disease [5].

To examine the effect of the triglyceride-glucose (TyG) index on longitudinal cognitive decline in a healthy middle-aged-to-elderly population. Studies demonstrated that increasing values of the TyG index were positively associated with the risk of cognitive decline. Monitoring the TyG index may help in the early identification of individuals at high risk of cognitive deterioration [6].

Whether blood pressure (BP), and at what level of controlled BP, reduces risk of cognitive impairment remains uncertain. Studies results show significant associations of hypertension and elevated SBP and PP levels with risk of mild cognitive impairment and the combined endpoint of either mild cognitive impairment or probable dementia, suggesting that intensive control of hypertension, SBP, and PP can preserve cognitive health in older women [7].

Previous studies regarding the lipid-cognition relation in older adults are limited and have generated mixed results. Higher blood concentrations of total cholesterol (TC) and LDL-C in late-life were associated with faster global cognitive decline [8].

Increased adiposity is associated with poor cognitive performance, independently of associated medical conditions. Studies investigations suggest that weight gain results, at least in part, from a neurological predisposition characterized by reduced executive function, and in turn obesity itself has a compounding negative impact on the brain via mechanisms currently attributed to low-grade systemic inflammation, elevated lipids and/or insulin resistance [9].

Elevated non fasting triglycerides were associated with non-Alzheimer dementia. However, this study neither evaluated the association of fasting triglycerides with incident cognitive impairment (ICI) nor adjusted for high-density lipoprotein cholesterol or hs-CRP (high-sensitivity C-reactive protein), known risk markers for ICI and dementia. Elevated fasting triglycerides were associated with ICI in White women after full adjustment including high-density lipoprotein cholesterol and hs-CRP. The current results suggest that the association between triglycerides and ICI is stronger in women than men [10].

II. OBJECTIVE

This study aimed to determine and evaluate the correlation and impact of high TG, TC, Overweight BMI, and Elevated SBP factors on cognitive abilities of top 10 undergraduated medical students in Ahmad Shah Abdali

ISSN: 2583-4053
Volume-3 Issue-1 || February 2024 || PP. 165-171
https://doi.org/10.55544/jrasb.3.1.27

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III. METHOD AND MATERIALS

It is prospective descriptive cross sectional study, on 59 top 10 undergraduated medical students in Ahmad Shah Abdali Higher Education Institute of Khost province from 2023/ Oct / 12 to 2023/ Nov / 02. The including parameters were TG, TC, BMI, SBP and Pulse rate of all 386 participants under study that recorded in computer special format. TG, TC, BMI, SBP and Pulse rate are done by special regents, micro lab and cardiomonetor. Recorded findings processing, comparison and evaluation results have been identified by IBM SPSS-23 version.

IV. RESULTS

The study was conducted from 386 participants on 59 top 10 undergraduated male medical students (mean age: 23.14 ± 3.68; range: 20-45 years). The correlation and impact of high TG, TC, Overweight BMI, Elevated SBP and High pulse rate on cognitive abilities of top 10 undergraduated medical students are described in the following tables.

Table 1: Descriptive statistics of all 386 participants' students, according to under study parameters.

Parameters	Minimum	Maximum	Mean	Std. Deviation
Age	20.0	45.0	23.14	3.68
Triglyceride	83.7	297.0	183.25	23.76
Total Cholesterol	100.0	247.0	183.25	23.76
BMI	23.22	42.74	23.84	4.24
SBP	85.0	172.0	113.73	13.16
Pulse rate	55.0	130.0	92.5	
n=386(100%)				

Table 2: Descriptive statistics of all 386 participants 'students, according to TG, TC, BMI, SBP and Pulse Rate range.

Triglycerides (TG)	Normal healthy TG range<150mg/dL.	Borderline= 150-199mg/dL.	High =200-499mg/dL.	Very high > 500mg/dL.
	3(0.78%)	306(79.27%)	77(19.94%)	0(0%)
n- 386(100)				
Total cholesterol (TC)	Normal TC range<200 mg/dL.	Borderline= 200-239 mg/dL.	High> 240 mg/dL.	-
	360(93.26%)	25(6.48%)	1(0.25%)	-
n- 386(100)				
Body Mass Index (BMI)	Healthy weight range BMI= 18.5-24.9.	Overweight range BMI= 25.0-29.9.	Obese range BMI≥ 30.0.	Underweight<18.5
	219(56.74%)	114(29.53%)	29(7.51%)	23(5.96%)
n- 386(100)				
Systolic Blood Pressure (SBP)	Normal SBP=120-139mmHg	Elevated SBP≥ 140 mmHg	-	-
	374(96.89%)	12(3.11%)	-	-
n- 386(100)				
Pulse rate	Normal range 60-100bpm	Bradycardia< 60bpm	Tachycardia> 100bpm	-
	353(91.45%)	6(1.55%)	27(7.0%)	-
n= 386(100)				

Table 3: Descriptive statistics of all 59 top 10 participants' students, according to under study parameters.

Parameters	Minimum	Maximum	Mean	Std. Deviation
Age	18.0	32.0	23.40	2.78
Triglyceride	152.0	251.0	189.62	22.94
Total Cholesterol	154.0	237.0	180.42	14.68

ISSN: 2583-4053
Volume-3 Issue-1 || February 2024 || PP. 165-171
https://doi.org/10.55544/jrasb.3.1.27

BMI	23.22	42.74	24.10	5.49
SBP	95.0	145.0	117.15	12.16
Pulse rate	56.0	122.0	85.59	12.99
n=59(100%)				

Table 4: Descriptive statistics of all 59 top 10 participants 'students, according to TG, TC, BMI, SBP and Pulse Rate range.

Triglycerides (TG)	Normal healthy TG range<150mg/dL.	Borderline= 150-199mg/dL.	High =200-499mg/dL.	Very high > 500mg/dL.
	0(0%)	54(91.53%)	5(8.47)	0(0%)
n- 59(100)				
Total cholesterol (TC)	Normal TC range> 200 mg/dL.	Borderline= 200-239 mg/dL.	High> 240 mg/dL.	-
	55(93.22%)	4(6.78%)	0(0%)	-
n- 59(100)				
Body Mass Index (BMI)	Healthy weight range BMI= 18.5-24.9.	Overweight range BMI= 25.0-29.9.	Obese range BMI≥ 30.0.	Underweight<18.5
	33(55.93%)	18(30.51%)	5(8.47%)	3(5.08%)
n- 59(100)				
Systolic Blood Pressure (SBP)	Normal SBP=120-139mmHg	Elevated SBP≥ 140 mmHg	-	-
	57(96.61%)	2(3.39%)	-	-
n- 59(100)				
Pulse rate	Normal range 60-100bpm	Bradycardia< 60bpm	Tachycardia> 100bpm	-
	49(83.05%)	1(1.69%)	9(15.25%)	-
n= 59(100)				

Table 5: Comparative descriptive statistics of all 386 and 59 top 10 participants according to TG, TC, BMI, SBP and Pulse Rate range.

n=59					n=386			
Triglycerides (TG)	Normal healthy TG range<150mg/dL.	Borderline = 150-199mg/dL.	High =200-499mg/dL.		Normal healthy TG range<150mg/dL.	Borderline = 150-199mg/dL.	High =200-499mg/dL.	
	0(0%)	54(13.99%)	5(1.29)		3(0.78%)	306(79.27%)	77(19.94%)	
n=59(15.28)					n=386(100)			
Total cholesterol (TC)	Normal TC range<200 mg/dL.	Borderline = 200-239 mg/dL.	High> 240 mg/dL.		Normal TC range<200 mg/dL.	Borderline = 200-239 mg/dL.	High> 240 mg/dL.	
	55(14.25%)	4(1.03%)	0(0%)		360(93.26%)	25(6.48%)	1(0.25%)	
n=59(15.28)					n=386(100)			
Body Mass Index (BMI)	Healthy weight range BMI= 18.5-24.9.	Overweight range BMI= 25.0-29.9.	Obese range BMI ≥ 30.0.	Underweight <18.5	Healthy weight range BMI= 18.5-24.9.	Overweight range BMI= 25.0-29.9.	Obese range BMI≥ 30.0.	Underweight <18.5
	33(8.55)	18(4.66)	5(1.29)	3(0.77)	219(56.74%)	114(29.53%)	29(7.51%)	23(5.96%)

ISSN: 2583-4053
Volume-3 Issue-1 || February 2024 || PP. 165-171
https://doi.org/10.55544/jrasb.3.1.27

n=59(15.28)				n=386(100)		
Systolic Blood Pressure (SBP)	Normal SBP=120-139mmHg	Elevated SBP≥ 140 mmHg -		Normal SBP=120-139mmHg	Elevated SBP≥ 140 mmHg -	
	57(14.75%)	2(0.53%) -		374(96.89%)	12(3.11%) -	
n=59(15.28)				n=386(100)		
Pulse rate	Normal range 60-100bpm	Bradycardia< 60bpm	Tachycardia> 100bpm	Normal range 60-100bpm	Bradycardia< 60bpm	Tachycardia> 100bpm
	49(12.71%)	1(0.24%)	9(2.33%)	353(91.45%)	6(1.55%)	27(7.0%)
n=59(15.28)				n=386(100)		

V. DISCUSSION

The study was conducted during (20) days on 386 undergraduated medical students in Ahmad shah Abdali Higher Education Institute of Khost province. Initially we described all male participants according to age. At the current study all male participants were with (mean age: 23.14 ± 3.68; range: 20-45 years). All participants of this study were from all (1st, 2nd, 3rd, 4th, 5th and 6th) classes. Statistic description of all participants, according to TG, TC, BMI, SBP and Pulse rate shows that Normal healthy TG range<150mg/dL: was more low 3(0.78%). Borderline TG = 150-199mg/dL; was more prevalent 306(79.27%) and High TG level =200-499mg/dL; was 77(19.94%). The normal healthy TC range<150mg/dL: was more low 3(0.78%). Borderline TC = 150-199mg/dL; was more prevalent 306(79.27%) and High TC level =200-499mg/dL; was 77(19.94%). The Healthy weight range BMI= (18.5-24.9) was 219(56.74%). Overweight range BMI (25.0-29.9) was 114(29.53%). Obese range BMI≥ (30.0) was 29(7.51%) and underweight <18.5: was 23(5.96%). The normal SBP= (120-139mmHg) was 374(96.89%), Elevated SBP≥ (140 mmHg) was 12(3.11%). The normal range of pulse rate (60-100bpm) was 353(91.45%). Bradycardia< (60bpm) was 6(1.55%) and tachycardia> (100bpm) was 27(7.0%). In the second part of this study we described all above parameters in the group of all 59 top 10 participants students for comparative outcomes. Statistic description of 59 top 10 participants, according to Age, TG, TC, BMI, SBP and Pulse rate shows that at the current study top 10 participants were with (mean age 23.40± 2.78; range: 18-32 years). Normal healthy TG range<150mg/dL: was 0(0%). Borderline TG = 150-199mg/dL; was more prevalent 54(91.53%) and High TG level =200-499mg/dL; was 5(8.47). The normal healthy TC range<150mg/dL: was more prevalent 55(93.22%). Borderline TC = 150-199mg/dL; was low 4(6.78%) and High TC level =200-499mg/dL; was 0(0%). The Healthy weight range BMI= (18.5-24.9) was 33(55.93%). Overweight range BMI (25.0-29.9) was 18(30.51%), obese range BMI≥ (30.0) was 5(8.47%) and underweight <18.5: was 3(5.08%). The normal SBP= (120-139mmHg) was more prevalent 57(96.61%), Elevated SBP≥ (140 mmHg) was low 2(3.39%). The normal range of pulse rate (60-100bpm) was 49(83.05%).Bradycardia< (60bpm) was 1(1.69%) and tachycardia> (100bpm) was 9(15.25%). Pearson correlation between SBP and Weight is at the 0.01 level significant, (P<0.01). Pearson correlation between DBP and Pulse rate is at the 0.01 level significant, (P<0.00). Pearson correlation between TC and Weight is at the 0.05 level significant, (P<0.02). Pearson correlation between TG and Roll number is at the 0.01 level significant, (P<0.01). Pearson correlation between SBP and Roll number is at the 0.05 level significant, (P<0.04). Pearson correlation between Height and BMI is at the 0.01 level significant, (P=0.00). Pearson correlation between Weight and BMI is at the 0.01 level significant, (P=0.00). Pearson correlation between SBP and BMI is at the 0.01 level significant, (P=0.00).

The comparison of findings; the mean age of 386 participants under study (mean age: 23.14 ± 3.68; range: 20-45 years) and the mean age of top ten students (mean age 23.40± 2.78; range: 18-32 years) were approved.

The comparison of findings; the High TG of 386 participants under study (High TG =200-499mg/dl: 77(19.94%) and the High TG of top ten students (High TG =200-499mg/dl: 5(1.29); were approved. It is noticeable that the before mentioned percentage is included low cognitive group (6-10 roll numbers).

The comparison of findings the Borderline TC= 200-239 mg/dL: 25(6.48%) of 386 participants under study and the Borderline TC= 200-239 mg/dL 4(1.03%) of top ten students were approved. It is noticeable that the before mentioned percentage is included low cognitive group (6-10 roll numbers).

The comparison of findings the Overweight range BMI= 25.0-29.9: 114(29.53%) and obese range BMI≥ 30.0: 29(7.51%) of 386 participants under study and the Overweight range BMI= 25.0-29.9: 18(4.66%) and obese range BMI≥ 30.0. ; 5(1.29%) of top ten students were approved. It is noticeable that the before mentioned percentage is more included in low cognitive group (6-10 roll numbers).

The comparison of findings the Elevated SBP≥ 140 mmHg: 12(3.11%) of 386 participants under study and the Elevated SBP≥ 140 mmHg: 2(0.53%) of top ten students were approved. It is noticeable that the before mentioned percentage is included in the low cognitive or (6-10) graded students group.

ISSN: 2583-4053
Volume-3 Issue-1 || February 2024 || PP. 165-171
https://doi.org/10.55544/jrasb.3.1.27

The comparison of findings the Tachycardia> 100bmp: 27(7.0%) of 386 participants under study and the Tachycardia> 100bmp: 9(2.33%) of top ten students were approved. It is noticeable that the before mentioned percentage is included in the low cognitive or (6-10) graded students group) and a 4 participant is included in high cognitive group (1-5 roll numbers).

Another study showed that baseline BMI = 28.4 units (30.3 in blacks [95% confidence interval (CI): 27.2–27.7]; 27.4 in whites [95% CI: 29.8–30.7]). During a mean annual follow-up of 6 years (*SD* = 4), lower baseline BMI was related to faster decline in global cognition (p = .002), and semantic memory (p < .001) and episodic memory (p = .004), but not working memory, perceptual speed, or visuospatial ability (all p > .08). The relationship of BMI with change in cognition was not modified by race (all p > .09) [1].

In another study Elevated Cholesterol, LDL-C, and T were associated with greater 20-year decline on a test of executive function, sustained attention, and processing speed [2].

In another study, they found that higher blood pressure appears to influence cognitive performance in different domains in the absence of dementia and severe cardiovascular diseases, such as strokes. This relationship seems to be independent of demographic factors (gender and education), medical co-morbidity (diabetes), and psychiatric disorders (depression). Furthermore, it presents different patterns considering ageing. In the elderly, a sort of "cardiovascular paradox" is highlighted, which allows considering higher blood pressure as a protective factor for cognitive functioning [3].

In a cohort of 1076 non demented adults 65 years old (59.7% women) from the HELIAD study, we assessed whether changes in body mass index (BMI) were associated with changes in cognition over a 3-year follow-up period separately for those 75 and >75 years old. We identified six BMI trajectory groups based on participants' BMI status at baseline and at the first follow-up visit; normal to normal BMI was the reference group. Major cognitive domains were evaluated, and a composite index reflecting global cognition was calculated. In participants aged _75 years, weight loss—moving from obesity to overweight or normal BMI—was associated with less decline in the memory composite score over time (= 0.141; p = 0.035), while 3-year maintenance of a BMI _ 25 kg/m2 was related to greater reduction in the visuospatial composite score over time (β = -0.093; p = 0.020). Regarding participants aged >75 years, 3-year maintenance of a BMI _ 30 kg/m2 contributed to a slower rate of decline in the memory composite score over time (= 0.102; p = 0.042), whereas weight loss—from overweight to normal BMI—was associated with a decreased attention/processing speed composite score longitudinally (β= -0.275; p = 0.043) [4, 11 and 12].

In another study, among the participants, 979 (19.9%) experienced global cognitive decline. The odds ratio (OR) of global cognitive and memory function decline were remarkably lower in participants in the low–high NHDL-C group than those in the low–low group [OR and 95% confidence interval (CI): 0.50 [0.26–0.95] for global cognitive decline, 0.45 [0.25–0.82] for memory function decline]. The lower OR was also significant in females (OR [95% CI]: 0.38 [0.17–0.87] for global cognitive decline; 0.44 [0.19–0.97] for memory function decline) and participants without cardiovascular disease (OR [95% CI]: 0.31 [0.11–0.87]. For global cognitive decline; 0.34 [0.14–0.83] for memory function decline). The increases in other cholesterol were also negatively associated with the risk of cognitive decline although not significantly) [5].

In another study, during the follow-up, compared with those in the bottom quartile group, participants in the top TyG quartile group presented a 51% increase in the risk of cognitive decline (OR 1.51 (95% CI: 1.06–2.14)). As shown by discrimination tests, adding the TyG index into the conventional model resulted in a slight improvement in predicting the risk of cognitive decline (NRI 16.00% (p = 0.004)) [6].

During a median follow-up of 9 years (IQR 6–15), 1132 (15·7%) participants were classified as mild cognitive impairment, 739 (10·3%) as probable dementia, and 1533 (21·3%) as cognitive loss. The incidence rates per 1000 person-years were 15·3 cases (95% CI 14·4–16·2) for mild cognitive impairment, 9·7 cases (9·0–10·4) for probable dementia, and 20·3 (19·3–21·3) for cognitive loss. Elevated SBP and PP were significantly associated with increased risk of mild cognitive impairment and cognitive loss (test for trends across SBP and PP strata, p<0·01). Individuals with hypertension, but with controlled SBP of less than 120 mm Hg did not have a significantly increased risk of mild cognitive impairment (HR 1·33, 95% CI 0·98–1·82, p=0·071), and of cognitive loss (1·09, 0·82–1·44, p=0·57) compared with normotension. Individuals on anti-hypertensive treatment with PP of less than 50 mm Hg did not have a significantly higher risk of mild cognitive impairment (1·26, 0·98–1·62, p=0·07) and of cognitive loss (1·17, 0·94–1·46, p=0·16). There were no significant associations between hypertension, SBP, or PP and probable dementia [7].

In another study, higher baseline TC and LDL-C concentrations were significantly associated with greater cognitive decline. Adjusted mean difference in cognitive decline rate, comparing two extreme quartiles, was 0.28 points (MMSE score) per year (95% confident interval (CI): -0.54,–0.02; P-trend = 0.005) for TC and 0.42 points per year (95% CI: -0.69, -0.16; P-trend = 0.006) for LDL-C. In a subgroup analysis, the associations between all lipids and cognitive decline appeared to be more pronounced among individuals aged 100 years or older (n = 90), relative to others [8].

In another study, examined the association between fasting triglycerides and ICI among 16170 participants in the REGARDS (Reasons for Geographic and Racial Differences in Stroke) study without cognitive impairment or a history of stroke at baseline in 2003 to

ISSN: 2583-4053
Volume-3 Issue-1 || February 2024 || PP. 165-171
https://doi.org/10.55544/jrasb.3.1.27

2007 and who had no stroke events during follow-up through September 2018. Overall, 1151 participants developed ICI during the median follow-up of 9.6 years. The relative risk for ICI associated with fasting triglycerides of ≥150 mg/dL versus <100 mg/dL including adjustment for age and geographic region of residence was 1.59 (95% CI, 1.20–2.11) among White women and 1.27 (95% CI, 1.00–1.62) among Black women. After multivariable adjustment, including adjustment for high-density lipoprotein cholesterol and hs-CRP, the relative risk for ICI associated with fasting triglycerides ≥150 mg/dL versus <100 mg/dL was 1.50 (95% CI, 1.09–2.06) among White women and 1.21 (95% CI, 0.93–1.57) among Black women. There was no evidence of an association between triglycerides and ICI among White or Black men [9, 10].

Our study indicated that, high TG, TC, Overweight range BMI, and elevated SBP have significant correlation with cognitive ability of undergraduated students. However, this issue needs to further investigations to confirm these findings.

VI. CONCLUSION

Overall, findings of our study indicated that, high TG, TC, Overweight range BMI, and elevated SBP have significant correlation with cognitive ability of undergraduated students. However, this issue needs to further investigations to confirm these findings.

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