

Relationship Between Cardiometabolic Index in Early Pregnancy and Hypertensive Disorder Complicating Pregnancy

Review began 12/15/2023
Review ended 12/26/2023
Published 01/03/2024

© Copyright 2024
Khan et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Zakir Ullah Khan¹, Shakir Ullah Khan², Musaira Tariq³, Waqar Mustafa⁴, Humayun Saleem⁵, Amna Akbar⁶, Sarosh Khan Jadoon⁷, Sabahat Tasneem⁸

1. Cardiology, Russells Hall Hospital, Dudley, GBR 2. Trauma and Orthopedics, University Hospital Southampton NHS Foundation Trust, Southampton, GBR 3. Gynecology, Hayatabad Medical Complex Peshawar, Peshawar, PAK 4. Cardiology, Combined Military Hospital, Muzaffarabad, PAK 5. Public Health, Health Services Academy, Muzaffarabad, PAK 6. Emergency and Accident, District Headquarter Jhelum, Muzaffarabad, PAK 7. General Surgery, Combined Military Hospital, Muzaffarabad, PAK 8. Public Health, Health Services Academy, Islamabad, PAK

Corresponding author: Amna Akbar, amna.akbar1324@gmail.com

Abstract

Background

This study aimed to examine the cardiometabolic index during early pregnancy in individuals with hypertension-complicating pregnancy, especially preeclampsia. Additionally, this study sought to determine the relationship between cardiometabolic index and the incidence of varying degrees of preeclampsia.

Methodology

This study included 289 pregnant women diagnosed with preeclampsia who were registered and delivered at our hospital. These women were assigned to the preeclampsia group. Additionally, a group of 289 healthy pregnant women of identical gestational ages within the same time frame was included for comparison. Clinical data on pregnancy, including body mass index (BMI), blood pressure, waistline, triglyceride levels, and cardiometabolic index, were compared between the two groups. An analysis was conducted to examine the association between early pregnancy cardiometabolic index and the occurrence of preeclampsia.

Results

There was a significant association between the quartile of cardiometabolic index and the proportion of preeclampsia patients ($p < 0.001$). Furthermore, after controlling for age and BMI, the risk of preeclampsia remained significantly elevated and was associated with the cardiometabolic index.

Conclusions

A positive correlation was observed between cardiometabolic index during early pregnancy and the occurrence of preeclampsia.

Categories: Internal Medicine, Cardiology, Obstetrics/Gynecology

Keywords: hdcp, preeclampsia, hypertension, cardiometabolic index, pregnancy

Introduction

Hypertensive disorder complicating pregnancy (HDCP) is a medical condition characterized by co-occurrence of pregnancy and increased blood pressure. This condition is recognized as a significant factor contributing to unfavorable outcomes in pregnant women [1]. Currently, there is a lack of clarity regarding the pathophysiology of the disease. Previous studies have indicated a strong correlation between extensive endothelial cell injury and dysfunction in hypertensive disorders of pregnancy. Aberrant lipid metabolism might induce vascular endothelial cell injury, contributing to the development of this pathological condition [2]. Preeclampsia is a significant form of HDCP that is distinguished by the onset of hypertension and proteinuria after the 20th week of gestation. It is a crucial contributor to both maternal and neonatal mortality [3]. Research findings indicate that the prevalence of preeclampsia ranges from 3% to 8% and increases the risk of pregnancy-associated stroke [4]. The prevalence of pregnancy hypertension reported for Pakistan was 9.3% and that for preeclampsia was 2.4% in a multicenter study [5]. A tertiary care study in Sindh, Pakistan, reported a 5.6% incidence of preeclampsia and eclampsia [6].

Hence, it is imperative to identify and manage risk factors associated with preeclampsia. The presence of aberrant blood lipid indices, specifically triglycerides (TG) and total cholesterol (TC), during the early stages of pregnancy, has been shown to have predictive value for the development of preeclampsia [7]. The cardiometabolic index is a novel metric initially introduced by Wakabayashi et al. in 2015 [8]. This index is calculated using the waist-to-height ratio (WHR), TG, and high-density lipoprotein cholesterol (HDL-C), which are commonly available in clinical settings [9]. Consequently, this composite score integrates the measures of abdominal obesity and lipid-related factors.

Empirical research has demonstrated the ability of the cardiometabolic index to anticipate alterations in left ventricular geometry [10], the occurrence of stroke [11], the incidence of diabetes [12], and various other medical conditions. Furthermore, it can provide an estimation of the impact of obesity on the prevalence of hypertension [13]. Nevertheless, there is scarce literature on the correlation between cardiometabolic indices and hypertensive disease during pregnancy. This study aimed to examine the association between cardiometabolic index in early pregnancy and the occurrence of preeclampsia. The findings of this research can contribute to the development of guidelines for preventing and managing hypertensive diseases in pregnancy as well as inform the formulation of public health policies in this regard.

Materials And Methods

Study population and duration

This study retrospectively included 289 pregnant women diagnosed with preeclampsia who were registered and delivered at our hospital between June 2020 and May 2023 and were categorized into the preeclampsia group. Additionally, a group of 289 healthy pregnant women of identical gestational ages within the same time frame was selected for comparison.

Inclusion and exclusion criteria

For pregnant women to be included in the study, several conditions needed to be met. First, the preeclampsia group had to satisfy the diagnostic criteria for preeclampsia, as outlined in a previous study [14]. Second, all pregnant women included in the study had singleton pregnancies. Lastly, it was required that the women had not taken any medications that could potentially impact their blood lipid profiles such as omega-3 fatty acids during pregnancy. Pregnant women were ineligible for enrollment under the following circumstances: (1) complications related to chronic hypertension disorders, immune system diseases, or endocrine diseases; (2) severe liver and kidney dysfunction; and (3) concurrent malnutrition, diabetes, or heart disease.

Ethical approval

This study underwent a thorough evaluation and was approved by the Medical Ethics Committee affiliated with the Abbas Institute of Medical Sciences (ERB number: 4608). The data were collected from the hospital database; therefore, informed consent was not obtained from patients.

Data collection

The indicator level during the initial trimester corresponds to the period preceding 14 weeks of gestation. Basic patient information was obtained from records, such as height, weight, waistline, and age. A biochemical and immunological analyzer and its assay kit were used to measure the levels of TC, TG, HDL-C,

How to cite this article

Khan Z, Khan S, Tariq M, et al. (January 03, 2024) Relationship Between Cardiometabolic Index in Early Pregnancy and Hypertensive Disorder Complicating Pregnancy. Cureus 16(1): e51598. DOI 10.7759/cureus.51598

and low-density lipoprotein cholesterol (LDL-C). The cardiometabolic index was calculated using the formula $TG/HDL-C \times WHtR$ [15]. The WHtR was calculated by dividing the waistline measurement (in centimeters) by the individual's height. In contrast, the TG/HDL-C ratio was calculated by dividing the value of TG by HDL-C. Pregnant women were categorized into four groups based on the quartiles of their cardiometabolic indices. Body mass index (BMI) was calculated using the formula $BMI = \text{weight (in kilograms)}/\text{height (in meters)}^2$ [16]. Three measurements of blood pressure were noted, and their average was calculated and noted as the systolic and diastolic blood pressure.

Data analysis

The data were processed using SPSS version 25.0 (IBM Corp., Armonk, NY, USA). The data for continuous variables, which followed a normal distribution, were reported as the mean \pm standard deviation (SD). Subsequently, a paired-sample t-test was conducted to compare variables between the two groups. Categorical data were represented as the number of cases given as frequencies and percentages and were analyzed using the chi-square test. Logistic regression analysis was employed to assess the independent association between the cardiometabolic index and preeclampsia while controlling for confounding factors. Odds ratios (ORs) and their accompanying 95% confidence intervals (CIs) were used for this purpose. The chi-square test was used to examine linear trends in the quartiles of the cardiometabolic index. All statistical analyses conducted in this study were performed using two-sided tests, and the significance level was set at $p < 0.05$.

Results

The baseline characteristics of the patients including age, height, waistline, weight, BMI, blood groups, and other details regarding pregnancy are presented in Table 1.

Variables	PG (n = 289)	CG (n = 289)	t-value	P-value	
Age (years)	32.04 \pm 2.92	28.3 \pm 3.22	14.41	0.000	
Height (cm)	159.10 \pm 2.04	158.18 \pm 3.3	-4.24	0.000	
Weight (kg)	66.73 \pm 5.71	61.62 \pm 3.65	12.04	0.000	
BMI (kg/m ²)	26.70 \pm 2.55	24.35 \pm 1.60	12.65	0.000	
Waistline (cm)	79.33 \pm 5.17	73.94 \pm 5.02	12.91	0.000	
Gestational age (weeks)	12.88 \pm 1.07	12.98 \pm 0.77	-1.52	0.129	
Parity (times)	0	152 (52.6%)	133 (46.0%)	-1.676	0.095
	1	114 (39.4%)	134 (46.4%)		
	2	23 (8.0%)	22 (7.6%)		
History of cesarean section	Have	38 (13.1%)	5 (1.7%)	5.399	0.000
	Not have	251 (86.9%)	284 (98.3%)		
History of miscarriages	Have	11 (3.8%)	1 (0.3%)	2.924	0.004
	Not have	278 (96.2%)	288 (99.7%)		
SBP (mmHg)	140.21 \pm 3.74	131.45 \pm 4.76	24.91	0.000	
DBP (mmHg)	89.57 \pm 6.52	80.43 \pm 5.77	17.64	0.000	
Blood type	A	113 (39.1%)	93 (32.2%)	1.248	0.213
	B	70 (24.2%)	79 (27.3%)		
	AB	67 (23.2%)	65 (22.5%)		
	O	39 (13.5%)	52 (18.0%)		

TABLE 1: Baseline data.

The p-value is considered significant at $p < 0.05$.

BMI: body mass index; SBP: systolic blood pressure; DBP: diastolic blood pressure

Table 1 demonstrates that the preeclampsia group exhibited higher values ($p < 0.05$) for age, height, weight, BMI, waistline, proportion of cesarean section history and history of miscarriages, systolic blood pressure (SBP), and diastolic blood pressure (DBP) than the control group.

The laboratory parameters including platelet count (PLT), white blood cell count (WBC), aspartate aminotransferase (AST), alanine aminotransferase (ALT), creatinine (Cr), uric acid (UA), fasting blood glucose (FBG), magnesium (Mg), chloride (Cl), thyroid-stimulating hormone (TSH), neutrophil count, lymphocyte count, hemoglobin, hematocrit, albumin, total bilirubin, free thyroxine, serum potassium, and blood calcium are presented in Table 2.

Index	PG (n = 289)	CG (n = 289)	t-value	P-value
WBC ($\times 10^9/L$)	9.90 \pm 1.52	8.70 \pm 1.51	9.78	0.000
Neutrophil count ($\times 10^9/L$)	6.33 \pm 1.16	6.31 \pm 1.46	0.17	0.863
Lymphocyte count ($\times 10^9/L$)	1.99 \pm 0.40	2.00 \pm 0.57	-0.16	0.867
Haemoglobin (g/L)	124.44 \pm 7.23	123.63 \pm 13.24	0.94	0.343
Haematocrit (%)	35.07 \pm 1.21	34.57 \pm 1.21	5.21	0.000
PLT ($\times 10^9/L$)	231.27 \pm 33.32	214.18 \pm 33.24	6.13	0.000
Albumin (g/L)	41.57 \pm 1.16	41.38 \pm 1.18	-1.97	0.050
Total bilirubin (mol/L)	10.66 \pm 1.97	10.01 \pm 1.97	-3.94	0.000
AST (U/L)	17.33 \pm 3.08	15.34 \pm 3.08	7.42	0.000
ALT (U/L)	16.33 \pm 3.95	11.33 \pm 3.92	15.56	0.000
Cr (mol/L)	44.07 \pm 9.66	45.53 \pm 9.66	-1.68	0.093
Urea (mmol/L)	3.02 \pm 0.32	2.90 \pm 0.32	4.55	0.000
UA (mol/L)	200.09 \pm 21.58	181.99 \pm 21.59	9.94	0.000
FBG (mmol/L)	4.64 \pm 0.64	4.57 \pm 0.64	1.33	0.182
Mg (mmol/L)	0.85 \pm 0.05	0.84 \pm 0.05	2.21	0.028
Cl (mmol/L)	103.51 \pm 1.29	102.52 \pm 1.29	8.79	0.000
TSH (mIU/L)	1.38 \pm 0.38	1.29 \pm 0.38	2.69	0.008
Free thyroxine (ng/dL)	1.18 \pm 0.07	1.18 \pm 0.08	-0.15	0.874
Serum potassium (mmol/L)	4.10 \pm 0.14	4.10 \pm 0.14	0.10	0.913
Blood calcium (mmol/L)	2.27 \pm 0.09	2.28 \pm 0.09	-0.14	0.884

TABLE 2: Laboratory parameters.

The p-value is considered significant at $p < 0.05$.

PLT: platelet count; WBC: white blood cell count; AST: aspartate aminotransferase; ALT: alanine aminotransferase; Cr: creatinine; UA: uric acid; FBG: fasting blood glucose; Mg: magnesium; Cl: chloride; TSH: thyroid-stimulating hormone

Table 2 demonstrates that the preeclampsia group exhibited greater WBC, hematocrit, PLT, AST, ALT, albumin, total bilirubin, UA, urea, Mg, Cl, and TSH levels ($p < 0.05$). The preeclampsia group had significantly higher levels of TC, TG, HDL-C, LDL-C, WHtR, and cardiometabolic index than the control group ($p < 0.05$) (Table 3).

Index	PG (n = 289)	CG (n = 289)	t-value	P-value
TC (mmol/L)	4.62 \pm 0.42	4.45 \pm 0.42	4.92	0.000
TG (mmol/L)	1.56 \pm 0.41	1.29 \pm 0.41	7.96	0.000
HDL-C (mmol/L)	1.74 \pm 0.16	1.69 \pm 0.15	-3.84	0.000
LDL-C (mmol/L)	2.43 \pm 0.36	2.21 \pm 0.36	-7.08	0.000
WHtR	0.50 \pm 0.03	0.46 \pm 0.03	-15.01	0.000
Cardiometabolic index	0.43 \pm 0.12	0.37 \pm 0.12	5.43	0.000

TABLE 3: Blood lipid index and cardiometabolic index.

The p-value is considered significant at $p < 0.05$.

TC: total cholesterol; TG: triglycerides; HDL-C: high-density lipoprotein cholesterol; LDL-C: low-density lipoprotein cholesterol; WHtR: waist-to-height ratio

Age (in years), higher BMI (kg/m^2), higher SBP and DBP, history of cesarean section, history of miscarriages, and higher cardiometabolic index were all risk factors for preeclampsia (Tables 4, 5).

Variables	Mean square		Sig.
	Between groups	Within groups	
One-way ANOVA test variables			
Age (years)	2,044.237	9.455	0.000
BMI (kg/m^2)	799.976	4.549	0.000
Gestational age (weeks)	1.557	0.874	0.182
Parity	0.561	0.399	0.236
SBP	11,091.737	18.349	0.000
DBP	12,067.268	37.968	0.000

TABLE 4: Test statistics for tests of associations of continuous and categorical variables with preeclampsia variables.

The p-value is considered significant at $p < 0.05$.

ANOVA: analysis of variance; BMI: body mass index; SBP: systolic blood pressure; DBP: diastolic blood pressure

Test variables		No preeclampsia	Preeclampsia	
Blood group	A	79	70	0.224
	B	65	67	
	AB	52	39	
	O	93	113	
History of cesarean section	Absent	288	278	0.006
	Present	1	11	
History of miscarriages	Absent	284	251	0.000
	Present	5	38	
Parity	1st	133	152	0.234
	2nd	134	114	
	3rd	22	23	
Cardiometabolic index quartiles	Q1	93	51	0.000
	Q2	75	75	
	Q3	73	67	
	Q4	48	96	

TABLE 5: Test statistics for tests of associations of categorical variables with preeclampsia variables.

Higher values of WBC, hematocrit, PLT, AST, ALT, albumin, total bilirubin, UA, urea, Mg, Cl, and TSH were all risk factors (Table 6). The variables TC, TG, HDL-C, and LDL-C in lipid index, WHtR, and cardiometabolic index demonstrated a significant association with the risk of preeclampsia ($p < 0.05$) (Table 7).

Variables	Mean square		Sig.
	Between groups	Within groups	
WBC ($\times 10^9/L$)	209.282	2.324	0.000
Neutrophil count ($\times 10^9/L$)	0.055	1.744	0.859
Lymphocyte count ($\times 10^9/L$)	0.007	0.249	0.865
Hemoglobin (g/L)	94.801	113.908	0.362
Hematocrit (%)	36.125	1.484	0.000
PLT ($\times 10^9/L$)	42,178.04	1,107.891	0.000
Albumin (g/L)	5.371	1.379	0.049
Total bilirubin ($\mu\text{mol/L}$)	61.051	3.889	0.000
AST (U/L)	576.002	9.508	0.000
ALT (U/L)	3,607.502	15.514	0.000
Cr ($\mu\text{mol/L}$)	306.252	93.448	0.071
Urea (mmol/L)	2.141	0.107	0.000
UA ($\mu\text{mol/L}$)	47,363.18	466.254	0.000
FBG (mmol/L)	0.708	0.418	0.194
Mg (mmol/L)	0.014	0.003	0.026
Cl (mmol/L)	141.516	1.685	0.000
TSH (mIU/L)	1.043	0.149	0.008
Free thyroxine (ng/dL)	0.000	0.006	0.873
Serum potassium (mmol/L)	0.000	0.022	0.911
Blood calcium (mmol/L)	0.000	0.01	0.882

TABLE 6: One-way ANOVA for laboratory index

The p-value is considered significant at $p < 0.05$.

PLT: platelet count; WBC: white blood cell count; AST: aspartate aminotransferase; ALT: alanine aminotransferase; Cr: creatinine; UA: uric acid; FBG: fasting blood glucose; Mg: magnesium; Cl: chloride; TSH: thyroid-stimulating hormone

Variables	Mean square		Sig.
	Between groups	Within groups	
TC (mmol/L)	4.152	0.178	0.000
TG (mmol/L)	10.327	0.171	0.000
HDL-C (mmol/L)	0.368	0.026	0.000
LDL-C (mmol/L)	7.009	0.134	0.000
WHR	0.208	0.001	0.000
Cardiometabolic index	0.441	0.016	0.000

TABLE 7: One-way ANOVA for lipid and cardiometabolic index.

The p-value is considered significant at $p < 0.05$.

ANOVA: analysis of variance; TC: total cholesterol; TG: triglycerides; HDL-C: high-density lipoprotein cholesterol; LDL-C: low-density lipoprotein cholesterol; WHR: waist-to-height ratio

The individuals' cardiometabolic index levels were categorized into quartiles, with values of 0.281, 0.424, and 0.508 for the first, second, and third quarters, respectively. Individuals with a cardiometabolic index equal to or less than the first quartile were assigned to Group 1 (Q1). Those with a cardiometabolic index greater than Q1 and equal to or less than the second quartile were assigned to Group 2 (Q2). Similarly, individuals with a cardiometabolic index greater than Q2 and equal to or less than the third quartile were assigned to Group 3 (Q3). Finally, individuals with a cardiometabolic index greater than Q3 were assigned to Group 4 (Q4). The prevalence of preeclampsia in the study participants was found to be 35.4% (51 out of 144) in the Q1 group, 50% (75 out of 150) in the Q2 group, 47.8% (67 out of 140) in the Q3 group, and 66.7% (96 out of 144) in the Q4 group.

There was a significant positive correlation ($p < 0.05$) between the cardiometabolic index quartile and the number of preeclampsia patients, indicating that as the quartile increased, the proportion of preeclampsia patients also increased. The findings of this study demonstrate a significant correlation between cardiometabolic index and preeclampsia prevalence. As seen in Figure 1, the prevalence of preeclampsia was notably associated with the ascending quartiles of the cardiometabolic index ($p < 0.001$), demonstrating an upward trajectory from Q1 to Q2. The trend was followed by Q4, although Q3 deviated slightly (Figure 1).

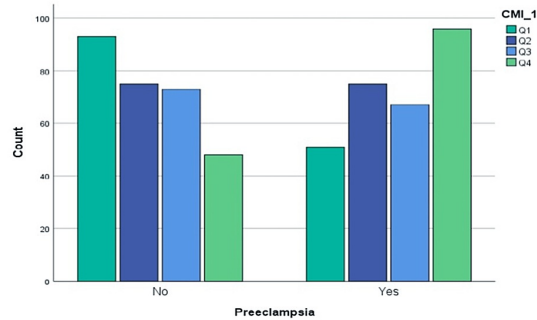


FIGURE 1: The prevalence of preeclampsia patients in association with quartiles.

Age, BMI, and cardiometabolic index were significantly correlated with the development of preeclampsia on binary logistic regression analysis. Logistic regression analysis was conducted to further examine the relationship between the cardiometabolic index and preeclampsia, with age and BMI as risk factors for preeclampsia (Table 8).

Variable	Odds ratio	95% confidence interval (CI)	Sig.
Age	5.262	3.686–7.509	0.000
BMI	6.385	4.445–9.170	0.000
Parity_1	0.744	0.530–1.047	0.090
Parity_2	0.915	0.487–1.716	0.781
CMI Quartiles_1	1.823	1.142–2.912	0.012
CMI Quartiles_2	1.673	1.039–2.693	0.034
CMI Quartiles_3	3.647	2.242–5.932	0.000
Constant	0.548		0.001

TABLE 8: Subgroup analysis of cardiometabolic index in preeclampsia

The p-value is considered significant at $p < 0.05$.

CMI: cardiometabolic index; BMI: body mass index

The relationship between cardiometabolic index and preeclampsia was positive even after adjusting for confounders (Table 9).

	Unadjusted OR	OR adjusted with age	OR adjusted with BMI	OR adjusted with age and BMI
CMI Quartiles_1	3.647 (2.242–5.932)	4.781 (2.786–8.206)	3.794 (2.214–6.502)	5.183 (2.835–9.475)
CMI Quartiles_2	2.00 (1.248–3.205)	2.323 (1.385–3.896)	1.904 (1.131–3.205)	2.184 (1.240–3.844)
CMI Quartiles_3	2.179 (1.349–3.520)	2.679 (1.579–4.545)	2.272 (1.335–3.865)	2.759 (1.560–4.878)
CMI Quartiles_4	–	–	–	–

TABLE 9: Logistic regression analysis of cardiometabolic index and preeclampsia.

CMI: cardiometabolic index; BMI: body mass index; OR: odds ratio

Discussion

Preeclampsia is a condition of unknown cause that occurs in pregnant women and affects approximately 4% of all pregnancies. It can affect many organ systems in the body [17], which can result in significant negative outcomes in both mothers and infants. The exact cause of this development has not been conclusively established. However, clinical research has demonstrated that vascular endothelial damage plays a crucial role in its occurrence [18]. Preeclampsia is characterized by elevated blood pressure in pregnant women. Research has indicated that characteristics such as age 35 years or older, gestational weight, number of previous pregnancies, pre-pregnancy BMI of 28 kg/m² or higher, serum Cr level, and mean arterial pressure are commonly associated with the development of preeclampsia [19].

The incidence of preeclampsia is influenced by TG and TC levels, whereas the cardiometabolic index is derived from the abdominal obesity index and lipid-related index. Thus, we postulated that there might be a correlation between cardiometabolic index and the occurrence of preeclampsia. The study revealed that women with preeclampsia had higher values than healthy pregnant women in terms of age, weight, BMI, waistline, the proportion of previous cesarean sections, history of miscarriages, SBP, DBP, WBC, hematocrit, PLT, AST, ALT, albumin, total bilirubin, UA, urea, Mg, Cl, and TSH. The variable values of TC, TG, HDL-C, LDL-C, WHtR, and cardiometabolic index increased in preeclampsia patients. These findings indicate that cardiometabolic index may predict the risk of onset of preeclampsia at an early gestational age. Further analysis discovered a distinct connection between the cardiometabolic index and the occurrence of preeclampsia, demonstrating a positive correlation between the two. These findings suggest that the cardiometabolic index can serve as a reliable marker for early detection of preeclampsia and enhance the understanding and management of preeclampsia in expecting mothers.

An observational study discovered that the TG level in the blood serum of individuals with hypertension was notably greater than that in individuals without hypertension [20]. Pregnant women with elevated TG levels and reduced HDL-C levels may be at a greater risk of developing dyslipidemia. This condition can negatively affect placental function, causing damage and apoptosis of placental vascular cells, ultimately leading to the development of preeclampsia [21]. Pregnant women typically undergo a sequence of adjustments in lipid metabolism during pregnancy [22]. The primary pathogenic alteration observed in preeclampsia is arterial spasm [23]. There is excessive growth of smooth muscle cells in the blood vessel walls. This induces vasoconstriction, resulting in the build-up of a significant quantity of lipids in the inner lining of blood arteries. This exacerbates the harm to vascular endothelial cells and leads to spasms in the arteries of pregnant women [22]. The lipid indices TC, TG, HDL-C, LDL-C, and WHtR were all significantly different in our study cohorts.

Research has indicated a strong correlation between maternal obesity and preeclampsia [24]. Yang et al. [25] demonstrated that obesity is a significant risk factor for preeclampsia, indicating the influence of lifestyle- and health-related factors. Preeclampsia is an inflammatory disorder that occurs during pregnancy [26]. Pregnant women who are obese are more likely to develop preeclampsia, potentially because placental growth is hindered by changes in metabolic balance [27]. Systemic inflammation, hypertension, and other negative consequences related to preeclampsia were found to be related to inflammatory cytokines originating from the mother's adipose tissue and circulating cholesterol [28].

Strengths and limitations

This study demonstrated that the cardiometabolic index can be utilized as a predictive tool for assessing the likelihood of developing preeclampsia. This finding establishes a foundation for promoting health and implementing preventive measures to manage and control pre-eclampsia. Furthermore, this study employed hierarchical analysis to mitigate potential research bias by examining several affecting elements. Nevertheless, this study has several limitations. Initially, this established a correlation between the cardiometabolic index and preeclampsia without establishing a causative relationship. Furthermore, this study was conducted at a single center and had a limited population size, thereby limiting the generalizability of the results to pregnant women from different geographical areas. Hence, future research should focus on conducting multicenter studies to improve the dependability of the study's findings.

Conclusions

The lipid indices including TC, TG, HDL-C, LDL-C, cardiometabolic index, and WHtR values were higher in the preeclampsia group, and there was a significant difference from the normal cohort that we observed in the comparison of preeclampsia females. There was a direct correlation between cardiometabolic index during early pregnancy and the likelihood of developing preeclampsia. These findings suggest that the study of cardiometabolic index can help to identify risk factors in pregnant females and there is a probability of cardiometabolic index to be used as a diagnostic biomarker.

Appendices

WBC (×10 ⁹ /L) PG	WBC (×10 ⁹ /L) CG	Neutrophil count (×10 ⁹ /L) PG	Neutrophil count (×10 ⁹ /L) CG	Lymphocyte count (×10 ⁹ /L) PG	Lymphocyte count (×10 ⁹ /L) CG	Hemoglobin (g/L) PG	Hemoglobin (g/L) CG	Hematocrit (%) PG	Hematocrit (%) CG	PLT (×10 ⁹ /L) PG	PLT (×10 ⁹ /L) CG	Albumin (g/L) PG	Albumin (g/L) CG	Total bilirubin (μmol/L) PG	Total bilirubin (μmol/L) CG	AST(U/L) PG	AS (U/L) CG
12.1	8.3	4.42	6.2	2.63	2.47	125.6	125.4	35.2	33.65	227.53	236.36	40.82	39.53	9.72	10.2	12	21
9.5	7.1	4.42	8	1.36	2.69	113.6	116.3	34.75	33.92	281.23	210.53	39.52	40.97	13.25	12.91	12	16
9.8	11.3	6.32	6.2	1.4	2.94	125.4	118.2	35.25	34.7	210.5	260.86	42.38	42.53	11.85	12.5	14	15
9.5	11.7	8.12	4.3	2.73	2.94	119.6	125.4	34.42	34.09	227.53	166.22	42.21	42.77	12.64	8.3	18	13
12.9	10	6.32	4.97	1.69	2.84	121.6	129.4	37.49	36.99	277.86	198.75	42.58	39.67	12.55	9.07	17	16
9.8	7	4.42	4.3	1.75	2.54	113.6	118.2	33.7	33.65	220.19	198.64	42.38	39.53	8.42	10.37	14	20
9.5	8.6	5.09	4.97	1.4	2.44	136	119.6	35.2	35.06	210.5	236.36	40.81	42.36	13.25	8.3	18	20
11.2	7.7	4.42	4.3	1.69	2.14	142	114.9	34.42	33.2	215.64	264.23	42.21	42.77	9.72	7.7	22	15
8.9	7.1	5.09	6.44	1.36	2.44	140	139	33.7	33.92	227.53	260.86	42.38	42.73	9.55	12.51	17	11
11.2	9.5	4.42	4.3	1.4	2.34	136	128	34.75	34.7	277.86	213.15	40.82	39.75	7.65	10.37	18	10
9.5	7	6.56	6.34	1.4	2.54	155	145	35.25	33.2	210.5	203.19	39.6	40.97	8.76	9.07	18	16
9.8	6.5	4.42	6.2	1.42	2.34	136	132	33.7	36.99	235.74	210.53	42.58	42.53	11.86	7.7	18	16

8.2	10.9	6.46	6.34	2.12	2.44	175	175	34.42	36.74	220.19	126.75	39.38	42.36	9.78	9.41	22	17
10.7	8.6	6.32	6.2	1.75	3.04	142	112	34.75	33.2	227.53	236.36	42.21	42.53	13.25	10.7	18	12
11.2	8.3	6.46	6.97	1.4	2.74	169	119	33.7	35.89	210.5	260.86	40.82	41.73	11.85	7.7	19	16
12.1	7.7	6.32	4.97	1.36	1.74	132.6	113.6	37.49	33.65	277.86	218.74	42.62	40.96	9.72	12.5	18	20
9.8	10	7.09	5.02	1.55	2.74	125.4	125.4	34.42	33.2	215.64	198.75	40.81	42.53	9.55	10.2	18	15
11.2	11.7	5.09	6.82	1.4	2.54	118.2	119.6	33.7	33.92	183.22	166.22	42.38	40.97	13.25	10.37	18	15
8.2	5.9	6.32	7.48	1.36	2.44	125.4	121.6	34.75	34.7	210.5	198.64	40.82	42.73	7.65	9.07	12	11
11.2	7.1	6.32	4.59	1.69	2.14	116.3	113.6	34.59	33.2	220.19	260.86	41.58	39.75	12.66	12.51	17	21
9.8	8.6	6.32	3.40	1.4	2.54	119.6	125.4	33.7	33.65	277.86	236.36	42.38	42.53	8.76	8.3	22	11
9.5	7.7	6.32	9.34	2.56	2.94	114.9	116.3	34.42	34.09	227.53	203.19	39.6	40.97	11.86	10.2	14	16
8.9	8.6	8.12	6.16	1.4	2.24	116.3	118.2	34.75	33.2	215.64	210.53	42.21	42.73	12.64	9.41	22	21
9.5	7.7	6.32	7.28	1.42	2.54	125.4	125.4	33.7	35.89	235.74	267.53	42.38	42.36	9.72	10.37	18	20
7.7	7	7.09	9.40	1.75	2.14	125.6	129.4	35.56	35.06	277.86	264.23	42.58	42.53	12.55	10.43	17	10
12.5	8.3	6.32	6.23	1.55	2.54	127.6	118.2	34.42	33.2	220.19	260.86	40.81	42.77	13.25	10.7	12	16
9.8	11.3	7.45	3.87	1.75	2.04	125.4	119.6	33.7	33.92	227.53	232.27	42.38	42.36	9.55	10.37	18	15
9.5	8.3	6.32	6.2	2.12	2.74	116.3	114.9	34.75	34.7	215.64	198.75	40.82	40.97	8.42	8.3	14	13
8.9	10.9	6.32	6.2	2.47	2.44	119.6	127.6	35.2	33.2	277.86	166.22	39.52	42.36	7.65	7.7	22	15
9.5	8.6	6.32	8	1.69	2.64	132.6	132.6	34.15	36.74	181.93	203.19	42.38	39.67	13.25	12.5	12	12
11.2	10.4	6.32	6.2	1.4	2.74	125.4	125.4	33.7	33.65	220.19	260.86	39.38	42.73	7.65	8.3	17	16
9.8	8.6	6.32	6.97	1.36	2.04	118.2	118.2	34.75	33.2	227.53	210.53	42.21	39.75	7.65	10.37	18	20
9.5	8.3	5.09	6.2	1.42	2.64	116.3	125.4	34.15	36.71	277.86	218.74	42.38	40.96	9.55	8.3	18	16
8.2	7.7	8.12	7.33	2.57	2.84	137.8	116.3	36.59	35.06	215.64	198.64	40.81	42.53	9.72	9.07	15	20
7.1	7	6.32	6.2	2.12	2.44	125.6	119.6	33.7	33.2	183.22	213.15	42.58	41.73	11.86	12.51	17	10
8.9	6.5	5.09	6.2	2.39	2.44	119.6	114.9	34.42	33.65	227.53	236.36	42.38	42.53	8.76	9.7	18	15
11.2	8.3	6.32	6.2	1.75	2.54	132.6	116.3	34.15	33.92	220.19	260.86	39.6	40.97	8.42	8.3	22	16
9.5	8.6	6.32	6.2	2.47	2.34	124.8	125.4	34.75	33.2	143.75	267.53	40.82	42.53	11.85	12.5	18	10
9.8	7.7	7.09	6.2	1.89	2.34	116.3	125.6	33.7	34.25	210.5	264.23	42.38	39.75	13.25	9.41	19	16
9.5	8.3	6.32	4.97	1.42	2.04	118.2	127.6	35.2	34.7	215.64	203.19	41.54	42.53	11.98	8.3	18	10
9.5	9.4	6.32	8	1.69	2.34	132.6	125.4	34.15	33.2	227.53	126.75	40.81	42.73	9.72	10.7	18	20
12.1	8.3	6.32	6.2	2.12	2.44	125.4	116.3	34.75	34.09	183.22	260.86	42.21	42.53	7.65	13.29	17	15
9.8	10	5.09	4.97	2.56	2.54	116.3	119.6	33.7	36.09	220.19	232.27	42.62	42.77	13.25	10.37	14	16
8.9	8.6	6.32	6.2	1.89	3.04	113.6	132.6	34.59	33.92	210.5	166.22	40.82	42.53	8.42	8.3	12	16
7.1	8.3	6.56	6.2	2.12	2.84	125.6	125.4	34.15	35.06	277.86	198.64	42.58	39.75	11.85	7.7	18	17
9.5	8.6	5.09	6.97	2.43	2.44	127.6	118.2	34.42	33.65	235.74	236.36	42.21	42.53	7.65	9.07	22	15
9.5	6.5	6.32	6.2	2.47	2.33	132.6	116.3	33.7	36.75	215.64	198.75	39.6	40.96	11.86	12.51	17	11
11.2	8.3	6.32	5.80	1.42	2.84	118.2	137.8	34.75	36.71	181.93	260.86	40.81	42.53	9.55	8.3	22	12
9.8	7.7	6.32	5.15	1.69	2.74	121.9	125.6	35.2	35.89	210.5	218.74	41.54	42.53	8.76	10.33	18	20
10.7	7	8.12	3.93	2.43	2.34	125.4	119.6	34.75	33.92	227.53	203.19	42.38	41.69	9.72	12.63	18	16
7.7	8.6	7.45	5.47	1.97	2.54	124.6	132.6	33.7	33.65	220.19	232.27	39.38	39.75	8.42	10.2	14	13
9.8	7	6.32	9.53	2.56	2.24	125.6	124.8	35.56	34.09	281.23	213.15	42.21	40.97	7.65	8.3	17	17
9.5	10	5.09	8.15	2.43	2.5038	131.2	116.3	34.42	36.71	215.64	236.36	42.58	42.73	12.55	9.41	13	15
8.9	11.7	6.32	6.59	1.42	1.256	137.8	118.2	34.75	36.72	210.5	260.86	40.82	39.2	11.76	10.37	22	16
9.5	8.3	6.32	5.80	1.55	3.04	118.2	132.6	33.7	36.71	183.22	213.15	40.81	39.2	7.65	12.5	22	12
11.6	8.6	7.09	4.97	2.47	2.74	119.6	125.4	37.24	33.2	215.75	210.53	39.52	40.96	13.25	8.3	18	13
8.2	10.9	6.56	6.2	1.55	1.74	121.9	116.3	34.15	36.09	227.53	126.75	41.58	42.36	12.55	10.2	14	10
8.9	11.7	6.32	6.44	1.69	2.74	125.4	113.6	35.2	35.06	215.64	198.64	42.21	39.75	8.42	9.07	17	20
12.9	8.6	6.32	4.97	1.89	2.54	124.6	125.6	36.39	34.09	210.5	260.86	42.62	41.73	7.65	12.51	18	16
10.6	8.3	6.32	6.2	1.75	2.44	125.6	127.6	34.42	36.71	277.86	236.36	42.58	42.73	9.72	10.33	18	15
9.8	10	6.32	6.2	2.43	2.14	132.6	132.6	34.15	33.65	235.74	203.19	40.81	39.67	11.86	8.3	18	16
9.5	11.3	6.32	6.2	2.39	2.54	118.2	118.2	34.59	36.99	220.19	166.22	40.82	42.77	7.65	8.18	17	15
11.6	5.9	6.32	8	2.12	2.94	119.6	121.9	35.2	34.25	230.15	198.75	41.58	42.36	13.25	13.31	19	16
9.5	7.7	6.32	7.33	1.55	2.24	127.6	125.4	37.21	34.7	249.27	264.23	42.38	40.96	11.85	8.3	22	15
8.9	9.4	6.56	6.2	2.43	2.54	116.3	124.6	34.15	35.89	277.86	260.86	42.21	40.97	7.65	12.5	12	12
11.2	10	8.12	4.97	1.75	2.14	125.4	125.6	35.56	33.65	215.64	210.53	41.58	39.53	7.65	9.41	23	10
9.5	8.3	6.32	6.2	1.69	2.54	124.6	131.2	34.42	36.71	183.22	236.36	39.05	39.75	8.76	13.2	15	21
12.9	8.6	6.32	6.2	1.42	2.04	121.9	137.8	35.2	33.2	215.75	218.74	42.58	42.73	11.85	8.3	18	20
9.8	11.3	6.32	6.97	2.57	2.74	124.8	118.2	34.15	33.92	143.75	126.75	40.81	42.36	9.72	12.51	18	16
8.3	8.3	5.09	6.44	2.12	2.44	118.2	119.6	36.59	36.99	277.86	203.19	42.62	42.53	7.65	8.3	17	16
7.7	9.5	6.32	4.42	1.75	2.64	119.6	121.9	33.7	34.09	215.64	260.86	42.21	42.36	11.85	9.07	22	13
9.5	6.5	6.32	7.45	2.43	2.74	125.6	125.4	34.59	36.74	235.74	198.75	40.82	41.73	9.55	13.2	17	11
9.8	10	6.32	4.42	1.55	2.04	116.3	124.6	34.15	36.75	210.5	198.64	42.21	42.53	11.86	10.2	22	16
8.2	8.3	6.32	5.09	1.69	2.64	125.4	125.6	35.2	33.92	281.23	236.36	39.52	42.77	7.65	8.3	13	15
11.6	8.3	7.45	4.42	2.54	2.84	124.6	132.6	33.7	36.09	220.19	264.23	42.58	40.96	8.42	10.2	18	16
12.5	7	6.32	4.42	2.43	2.44	132.6	118.2	34.42	35.06	277.86	210.53	39.6	42.53	11.98	12.5	18	12

9.5	10	6.32	4.85	2.57	2.44	121.9	119.6	37.24	36.74	183.22	260.86	40.81	40.97	9.72	13.29	18	20
9.8	5.9	6.32	6.44	2.39	2.54	118.2	127.6	34.15	34.09	210.5	166.22	42.38	42.36	7.65	8.3	18	15
10.7	8.6	6.56	8	1.75	2.34	119.6	116.3	33.7	33.92	227.53	213.15	41.58	42.53	12.55	9.41	12	16
8.2	8.3	6.32	6.2	1.55	2.34	116.3	125.4	36.39	33.65	215.75	203.19	42.38	41.69	13.25	10.37	19	10
9.5	10.9	6.46	6.2	1.89	2.04	121.6	124.6	35.2	35.89	215.64	198.75	40.82	42.73	8.76	8.3	17	10
9.8	7.1	6.32	6.2	1.69	2.34	125.4	121.9	35.56	36.09	277.86	260.86	42.38	39.75	12.64	12.51	22	12
9.5	7.7	8.12	4.97	1.55	2.44	124.6	124.8	33.7	33.2	210.5	264.23	39.6	39.67	7.65	9.07	17	15
8.9	8.3	7.09	6.2	2.43	2.54	137.8	118.2	34.42	36.74	230.15	218.74	42.38	42.77	13.25	10.37	12	20
12.1	6.5	6.46	6.2	2.47	3.04	125.6	119.6	34.59	35.06	284.53	210.53	42.58	42.36	13.25	8.3	13	16
12.9	9.5	7.45	6.2	2.43	2.84	118.2	125.6	34.75	34.7	220.19	198.64	42.38	42.53	11.86	12.5	18	16
9.8	8.6	6.46	6.2	2.12	2.44	119.6	116.3	33.7	34.25	235.74	260.86	42.62	41.73	7.65	10.37	18	21
12.5	8.3	6.32	7.33	1.42	2.33	116.3	125.4	34.15	33.92	210.5	236.36	42.38	40.96	9.72	12.63	15	13
9.5	10.9	5.09	6.2	2.21	2.84	121.9	124.6	35.2	36.99	277.86	126.75	39.6	40.97	7.65	12.41	22	16
8.2	8.6	6.32	4.06	1.75	2.74	125.4	118.2	37.49	36.74	215.75	203.19	42.38	42.73	9.55	8.3	18	16
12.1	7	6.46	6.54	1.69	2.34	124.6	119.6	33.7	35.06	227.53	166.22	40.81	42.36	12.26	10.2	18	15
9.8	8.6	6.46	7.33	2.56	1.163	131.2	137.8	36.59	34.7	215.64	198.75	42.38	42.36	11.85	9.07	22	20
9.5	8.3	6.46	6.2	2.43	1.182	132.6	116.3	34.15	33.2	210.5	260.86	42.38	42.53	7.65	12.5	18	15
12.9	10.4	6.46	6.2	1.89	1.326	118.2	124.6	35.2	34.25	183.22	236.36	41.54	39.75	8.42	8.3	17	20
9.5	7.1	6.46	6.2	1.55	1.254	119.6	121.9	33.7	34.09	277.86	236.36	39.6	39.2	9.72	9.41	18	11
8.9	6.5	6.32	6.44	1.78	1.163	116.3	125.4	37.24	33.2	230.15	166.22	40.82	42.36	7.65	10.37	17	16
8.2	8.3	6.46	6.2	2.39	1.136	121.9	124.8	34.59	33.92	281.23	218.74	42.58	42.73	7.05	9.07	18	16
8.3	7	8.12	6.34	2.63	1.256	124.6	118.2	34.15	33.65	210.5	198.64	39.05	40.97	11.86	8.3	12	16
10.7	8.3	6.46	6.2	1.69	1.276	125.4	132	33.7	34.7	220.19	203.19	39.05	42.36	9.72	12.51	14	16
8.9	11.7	6.46	8	2.12	1.326	125.6	129	35.2	33.2	215.75	210.53	40.81	39.75	8.42	12.41	18	10
9.5	8.6	6.46	6.97	1.89	1.182	121.6	112.8	37.49	36.74	277.86	260.86	42.21	39.2	7.05	12.5	19	17
9.8	7.7	8.12	6.34	2.21	1.219	118.2	117.5	35.56	34.09	215.64	236.36	39.6	39.67	8.76	8.3	22	15
11.6	9.5	6.32	7.33	1.55	1.254	119.6	125.4	33.7	33.65	210.5	203.19	41.58	42.53	10.05	9.07	13	20
9.5	5.9	5.09	6.34	1.42	1.246	137.8	122.3	35.2	33.2	235.74	193.5	42.58	41.73	7.05	13.31	18	15
12.1	11.3	6.46	6.2	2.47	1.256	116.3	121.9	37.49	34.7	249.27	198.64	39.52	42.53	11.85	10.37	18	10
8.9	8.3	6.46	4.97	2.43	1.312	124.6	116.3	36.59	36.99	183.22	210.53	42.62	42.73	9.55	8.18	14	11
9.5	10	6.46	6.2	1.69	1.378	121.9	125.6	35.2	35.06	277.86	260.86	42.21	42.36	9.72	10.43	17	16
7.7	7	6.46	6.34	2.57	1.182	125.4	137.8	34.15	33.2	210.5	193.5	40.81	40.96	8.42	8.3	17	16
10.7	8.3	6.56	6.34	2.39	1.196	124.8	127.6	37.24	34.7	227.53	218.74	40.82	40.97	11.86	9.07	18	13
9.8	8.6	5.09	6.34	2.43	1.219	118.2	118.2	34.42	36.99	143.75	203.19	39.38	39.75	7.65	9.41	23	20
9.5	10	5.09	6.34	1.89	1.254	119.6	125.4	37.49	36.09	220.19	210.53	39.6	42.77	9.55	12.51	22	16
12.1	11.7	6.46	6.34	2.12	1.246	125.6	124.6	35.2	34.7	215.64	193.5	42.58	41.69	8.76	8.3	18	20
9.8	8.3	6.46	6.2	1.75	1.256	124.6	124.8	34.15	33.65	210.5	260.86	42.21	42.36	9.72	9.07	18	16
8.9	8.6	6.46	6.34	2.43	1.326	116.3	121.9	34.75	36.74	277.86	198.64	42.38	42.73	9.78	10.37	12	16
8.2	5.9	7.45	8	1.76	1.182	118.2	125.6	34.59	33.92	215.75	166.22	42.21	42.36	10.05	13.9	19	15
9.5	8.3	6.46	6.34	1.69	1.196	132.6	122.3	34.42	36.99	230.15	193.5	41.58	42.53	9.72	8.3	14	16
12.5	9.5	6.46	6.34	1.97	1.276	125.4	118.2	35.56	34.7	235.74	203.19	42.38	39.75	7.65	10.2	15	15
9.5	7	6.32	6.34	1.75	1.163	118.2	127.6	34.15	33.65	210.5	260.86	42.62	40.97	7.05	9.07	17	16
12.1	8.6	6.46	8	2.43	1.254	121.9	125.4	33.7	34.25	281.23	210.53	40.81	40.96	11.85	12.5	17	10
9.8	8.3	5.09	6.2	1.75	1.246	118.2	119.6	35.2	34.09	277.86	198.64	42.38	42.36	7.65	8.3	22	12
11.6	11.7	6.46	4.97	2.12	1.219	119.6	132.6	34.59	33.92	227.53	218.74	40.82	39.53	9.72	10.2	18	16
9.8	8.3	6.32	6.34	1.42	1.248	121.6	124.6	37.49	35.06	220.19	260.86	42.21	40.97	7.65	13.2	18	17
9.5	7.7	6.46	6.34	2.56	1.182	116.3	131.2	34.15	33.65	210.5	203.19	42.38	39.67	8.42	8.3	14	20
8.9	7	7.09	6.34	1.76	1.196	124.6	125.6	34.42	33.2	215.64	210.53	41.54	42.53	11.86	10.37	18	11
8.2	7.1	8.12	6.34	1.69	1.256	137.8	137.8	35.2	34.7	183.22	198.64	42.58	42.36	9.05	12.5	18	16
7.7	9.5	6.46	6.44	1.75	1.163	125.4	119.6	36.59	34.09	277.86	260.86	39.6	42.73	7.65	12.51	22	16
9.5	7.7	7.02	4.97	2.39	1.254	118.2	125.4	37.24	36.99	215.75	164.93	39.52	42.53	11.85	13.9	12	12
9.8	8.3	7.02	4.97	1.97	1.246	125.6	122.3	34.15	33.65	284.53	203.19	42.62	40.96	8.76	9.41	13	15
8.9	8.6	5.09	6.34	1.78	1.326	121.9	127.6	35.2	33.92	210.5	210.53	42.21	42.36	7.65	12.63	22	15
9.5	10.4	7.02	6.34	2.57	1.219	122.3	118.2	34.42	34.7	230.15	260.86	42.38	42.53	10.05	8.3	17	16
10.6	8.3	8.12	6.34	2.54	1.182	124.6	131.2	37.49	36.09	215.64	198.64	41.58	40.97	12.64	12.41	18	21
9.5	10.9	7.02	7.33	1.89	1.196	116.3	124.6	33.7	36.74	277.86	166.22	40.81	39.75	9.72	10.2	17	20
11.2	7	7.02	6.34	1.69	1.163	132.6	121.6	34.15	33.65	220.19	210.53	40.82	42.53	7.65	12.91	12	16
9.8	8.3	7.02	6.34	1.76	1.216	121.9	125.6	37.22	34.7	227.53	203.19	42.58	42.73	7.05	12.5	13	16
9.5	5.9	6.32	6.2	2.43	1.254	125.4	125.6	34.59	33.92	235.74	126.75	42.21	42.36	8.42	12.51	22	10
9.8	6.5	7.02	6.34	1.42	1.246	118.2	113.6	33.7	36.99	210.5	193.5	42.21	42.53	11.86	8.3	18	17
7.7	9.4	7.02	4.97	1.75	1.378	125.6	125.4	37.21	33.2	284.53	198.64	42.38	42.77	7.65	9.41	18	12
9.5	10	5.09	6.34	2.47	1.256	131.2	119.6	34.15	33.65	277.86	210.53	39.6	40.96	9.68	13.9	22	13
8.9	7	6.32	6.2	2.56	1.182	124.6	121.6	34.42	36.72	183.22	166.22	39.05	42.53	11.98	12.63	18	15

12.1	8.6	5.09	8.3	2.47	1.219	118.2	106.104	36.59	36.09	230.15	198.64	40.82	41.69	11.85	8.3	12	17
8.3	7.7	8.09	8.3	2.54	1.256	119.6	167.998	35.56	33.2	220.19	236.36	42.38	42.36	13.25	9.41	22	16
9.5	5.9	8.09	10	1.55	2.47	125.6	97.262	37.24	34.09	215.75	126.75	42.62	42.73	8.42	12.5	17	16
8.3	8.3	8.09	8.6	2.12	2.56	124.6	123.788	34.59	33.65	277.86	260.86	39.52	42.36	7.65	10.37	18	15
12.5	8.3	8.09	9.5	2.56	2.35	118.2	106.104	34.42	34.7	281.23	264.23	39.38	42.53	12.66	8.3	18	12
12.9	10	8.09	6.5	1.42	1.254	132.6	123.788	34.15	33.2	235.74	166.22	42.21	39.75	12.64	12.5	19	10
11.2	8.6	8.09	7.33	2.35	2.57	121.9	106.104	36.39	33.92	227.53	210.53	42.62	40.97	9.72	10.2	17	16
8.2	9.5	8.09	6.2	2.57	2.56	127.6	88.42	36.59	36.74	215.64	236.36	42.58	40.96	11.85	12.51	13	20
9.8	6.5	5.09	4.3	2.21	1.97	122.3	132.63	33.7	33.65	277.86	203.19	39.6	42.36	12.55	8.3	14	15
8.9	8.6	8.09	4.3	1.4	2.43	125.6	97.262	37.24	33.2	253.36	260.86	40.82	39.53	11.86	9.07	22	20
8.3	8.3	8.09	4.97	1.55	1.89	127.6	70.736	35.56	35.89	143.75	198.75	42.38	42.73	7.65	12.63	18	16
10.7	7.7	8.09	4.3	1.78	2.12	121.9	97.262	35.2	34.7	220.19	213.15	42.21	39.75	8.76	10.37	15	16
8.2	8.3	8.09	8.3	2.39	1.42	122.3	123.788	34.75	35.06	183.22	198.64	42.38	41.69	13.25	8.3	19	12
7.7	10.4	8.12	8.6	2.47	1.75	132.6	114.946	34.42	33.2	215.75	236.36	41.58	42.77	7.65	13.2	17	15
12.1	7	8.09	10	2.73	1.69	125.6	79.578	37.49	33.92	277.86	218.74	40.81	42.36	12.55	13.9	18	11
9.8	7.7	5.09	8.6	1.69	1.76	121.9	150.314	37.24	34.09	253.36	260.86	42.38	41.73	9.72	9.41	14	20
9.5	11.7	8.09	8.3	1.75	2.35	119.6	132.63	35.56	34.25	253.36	232.27	40.82	42.73	9.55	13.29	15	20
8.9	9.4	4.42	7.7	2.54	2.43	118.2	88.42	35.2	33.2	183.22	213.15	42.58	40.96	11.98	8.3	12	16
11.2	8.6	7.45	8.3	2.56	2.12	125.6	97.262	33.7	33.65	235.74	203.19	39.6	42.53	11.85	13.9	22	12
12.9	8.3	6.32	6.5	2.21	1.216	124.6	114.946	34.75	34.7	215.64	210.53	42.38	39.67	7.65	13.9	18	15
7.1	10.4	4.42	5.3	2.35	1.256	116.3	110.525	34.59	36.99	220.19	264.23	40.82	42.36	13.25	12.51	17	16
8.3	8.3	4.42	8.6	2.39	2.12	119.6	119.367	33.7	33.2	227.53	193.5	42.58	42.77	8.76	8.3	18	16
9.8	7.7	5.09	8.3	1.58	2.56	127.6	111.4092	34.42	36.09	277.86	210.53	42.21	39.75	11.86	10.37	17	16
8.9	10	4.42	7.5	1.97	2.57	125.6	106.104	34.15	33.65	253.36	260.86	42.38	39.2	7.65	8.3	18	15

TABLE 10: Data file.

Laboratory Index.

PLT: platelet count; WBC: white blood cell count; AST: aspartate aminotransferase; ALT: alanine aminotransferase; Cr: creatinine; UA: uric acid; FBG: fasting blood glucose; Mg: magnesium; Cl: chloride; TSH: thyroid-stimulating hormone

WBC ($\times 10^9/L$) PG	WBC ($\times 10^9/L$) CG	Neutrophil count ($\times 10^9/L$) PG	Neutrophil count ($\times 10^9/L$) CG		Lymphocyte count ($\times 10^9/L$) PG	Lymphocyte count ($\times 10^9/L$) CG	Hemoglobin (g/L) PG	Hemoglobin (g/L) CG	Hematocrit (%) PG	Hematocrit (%) CG	PLT ($\times 10^9/L$) PG	PLT ($\times 10^9/L$) CG		Albumin (g/L) PG	
12.1	10.9	4.42	4.07	4.3	2.63	2.47	125.6		35.2	34.7	227.53	253.36	236.36	40.97	4
9.5	8.3	4.42	4.07	4.3	1.36	2.69	113.6		34.75	34.25	281.23	227.53	210.53	39.67	3
9.8	8.6	6.32	5.97	6.2	1.40	2.94	125.4		35.25	34.75	210.5	277.86	260.86	42.53	4
9.5	8.3	8.12	7.77	8	2.73	2.94	119.6		34.42	33.92	227.53	183.22	166.22	42.36	4
12.9	11.7	6.32	5.97	6.2	1.69	2.84	121.6		37.49	36.99	277.86	215.75	198.75	42.73	4
9.8	8.6	4.42	4.07	4.3	1.75	2.54	113.6		33.7	33.2	220.19	215.64	198.64	42.53	4
9.5	8.3	5.09	4.74	4.97	1.40	2.44	125.4		35.2	34.7	210.5	253.36	236.36	40.96	4
11.2	10	4.42	4.07	4.3	1.69	2.14	116.3		34.42	33.92	215.64	281.23	264.23	42.36	4
8.9	7.7	5.09	4.74	4.97	1.36	2.44	118.2		33.7	33.2	227.53	277.86	260.86	42.53	4
11.2	10	4.42	4.07	4.3	1.40	2.34	125.4		34.75	34.25	277.86	230.15	213.15	40.97	4
9.5	8.3	6.56	6.21	6.44	1.40	2.54	129.4		35.25	34.75	210.5	220.19	203.19	39.75	3
9.8	8.6	4.42	4.07	4.3	1.42	2.34	118.2		33.7	33.2	235.74	227.53	210.53	42.73	4
8.2	7	6.46	6.11	6.34	2.12	2.44	119.6		34.42	33.92	220.19	143.75	126.75	39.53	3
10.7	9.5	6.32	5.97	6.2	1.75	3.04	114.9		34.75	34.25	227.53	253.36	236.36	42.36	4
11.2	10	6.46	6.11	6.34	1.40	2.74	127.6		33.7	33.2	210.5	277.86	260.86	40.97	4
12.1	10.9	6.32	5.97	6.2	1.36	1.74	132.6		37.49	36.99	277.86	235.74	218.74	42.77	4
9.8	8.6	7.09	6.74	6.97	1.55	2.74	125.4		34.42	33.92	215.64	215.75	198.75	40.96	4
11.2	10	5.09	4.74	4.97	1.40	2.54	118.2		33.7	33.2	183.22	183.22	166.22	42.53	4
8.2	7	6.32	5.97	6.2	1.36	2.44	125.4		34.75	34.25	210.5	215.64	198.64	40.97	4
11.2	10	6.32	5.97	6.2	1.69	2.14	116.3		34.59	34.09	220.19	277.86	260.86	41.73	4
9.8	8.6	6.32	5.97	6.2	1.40	2.54	119.6		33.7	33.2	277.86	253.36	236.36	42.53	4
9.5	8.3	6.32	5.97	6.2	2.56	2.94	114.9		34.42	33.92	227.53	220.19	203.19	39.75	3
8.9	7.7	8.12	7.77	8	1.40	2.24	116.3		34.75	34.25	215.64	227.53	210.53	42.36	4
9.5	8.3	6.32	5.97	6.2	1.42	2.54	125.4		33.7	33.2	235.74	284.53	267.53	42.53	4
7.7	6.5	7.09	6.74	6.97	1.75	2.14	125.6		35.56	35.06	277.86	281.23	264.23	42.73	4
12.5	11.3	6.32	5.97	6.2	1.55	2.54	127.6		34.42	33.92	220.19	277.86	260.86	40.96	4
9.8	8.6	7.45	7.1	7.33	1.75	2.04	125.4		33.7	33.2	227.53	249.27	232.27	42.53	4
9.5	8.3	6.32	5.97	6.2	2.12	2.74	116.3		34.75	34.25	215.64	215.75	198.75	40.97	4
8.9	7.7	6.32	5.97	6.2	2.47	2.44	119.6		35.2	34.7	277.86	183.22	166.22	39.67	3
9.5	8.3	6.32	5.97	6.2	1.69	2.64	132.6		34.15	33.65	181.93	220.19	203.19	42.53	4

11.2	10	6.32	5.97	6.2	1.40		2.74	125.4		33.7	33.2	220.19	277.86	260.86	39.53	3
9.8	8.6	6.32	5.97	6.2	1.36		2.04	118.2		34.75	34.25	227.53	227.53	210.53	42.36	4
9.5	8.3	5.09	4.74	4.97	1.42		2.64	116.3		34.15	33.65	277.86	235.74	218.74	42.53	4
8.2	7	8.12	7.77	8	2.57		2.84	137.8		36.59	36.09	215.64	215.64	198.64	40.96	4
7.1	5.9	6.32	5.97	6.2	2.12		2.44	125.6		33.7	33.2	183.22	230.15	213.15	42.73	4
8.9	7.7	5.09	4.74	4.97	2.39		2.44	119.6		34.42	33.92	227.53	253.36	236.36	42.53	4
11.2	10	6.32	5.97	6.2	1.75		2.54	132.6		34.15	33.65	220.19	277.86	260.86	39.75	3
9.5	8.3	6.32	5.97	6.2	2.47		2.34	124.8		34.75	34.25	143.75	284.53	267.53	40.97	4
9.8	8.6	7.09	6.74	6.97	1.89		2.34	116.3		33.7	33.2	210.5	281.23	264.23	42.53	4
9.5	8.3	6.32	5.97	6.2	1.42		2.04	118.2		35.2	34.7	215.64	220.19	203.19	41.69	4
9.5	8.3	6.32	5.97	6.2	1.69		2.34	132.6		34.15	33.65	227.53	143.75	126.75	40.96	4
12.1	10.9	6.32	5.97	6.2	2.12		2.44	125.4		34.75	34.25	183.22	277.86	260.86	42.36	4
9.8	8.6	5.09	4.74	4.97	2.56		2.54	116.3		33.7	33.2	220.19	249.27	232.27	42.77	4
8.9	7.7	6.32	5.97	6.2	1.89		3.04	113.6		34.59	34.09	210.5	183.22	166.22	40.97	4
7.1	5.9	6.56	6.21	6.44	2.12		2.84	125.6		34.15	33.65	277.86	215.64	198.64	42.73	4
9.5	8.3	5.09	4.74	4.97	2.43		2.44	127.6		34.42	33.92	235.74	253.36	236.36	42.36	4
9.5	8.3	6.32	5.97	6.2	2.47		2.33	132.6		33.7	33.2	215.64	215.75	198.75	39.75	3
11.2	10	6.32	5.97	6.2	1.42		2.84	118.2		34.75	34.25	181.93	277.86	260.86	40.96	4
9.8	8.6	6.32	5.97	6.2	1.69		2.74	121.9		35.2	34.7	210.5	235.74	218.74	41.69	4
10.7	9.5	8.12	7.77	8	2.43		2.34	125.4		34.75	34.25	227.53	220.19	203.19	42.53	4
7.7	6.5	7.45	7.1	7.33	1.97		2.54	124.6		33.7	33.2	220.19	249.27	232.27	39.53	3
9.8	8.6	6.32	5.97	6.2	2.56		2.24	125.6		35.56	35.06	281.23	230.15	213.15	42.36	4
9.5	8.3	5.09	4.74	4.97	2.43		2.50	131.2		34.42	33.92	215.64	253.36	236.36	42.73	4
8.9	7.7	6.32	5.97	6.2	1.42	125.6	1.26	137.8		34.75	34.25	210.5	277.86	260.86	40.97	4
9.5	8.3	6.32	5.97	6.2	1.55	113.6	3.04	118.2		33.7	33.2	183.22	230.15	213.15	40.96	4
11.6	10.4	7.09	6.74	6.97	2.47	125.4	2.74	119.6		37.24	36.74	215.75	227.53	210.53	39.67	3
8.2	7	6.56	6.21	6.44	1.55	119.6	1.74	121.9		34.15	33.65	227.53	143.75	126.75	41.73	4
8.9	7.7	6.32	5.97	6.2	1.69	121.6	2.74	125.4		35.2	34.7	215.64	215.64	198.64	42.36	4
12.9	11.7	6.32	5.97	6.2	1.89	113.6	2.54	124.6		36.39	35.89	210.5	277.86	260.86	42.77	4
10.6	9.4	6.32	5.97	6.2	1.75	125.4	2.44	125.6		34.42	33.92	277.86	253.36	236.36	42.73	4
9.8	8.6	6.32	5.97	6.2	2.43	116.30	2.14	132.6		34.15	33.65	235.74	220.19	203.19	40.96	4
9.5	8.3	6.32	5.97	6.2	2.39	118.2	2.54	118.2		34.59	34.09	220.19	183.22	166.22	40.97	4
11.6	10.4	6.32	5.97	6.2	2.12	125.4	2.94	119.6		35.2	34.7	230.15	215.75	198.75	41.73	4
9.5	8.3	6.32	5.97	6.2	1.55	129.4	2.24	127.6		37.21	36.71	249.27	281.23	264.23	42.53	4
8.9	7.7	6.56	6.21	6.44	2.43	118.20	2.54	116.3		34.15	33.65	277.86	277.86	260.86	42.36	4
11.2	10	8.12	7.77	8	1.75	119.6	2.14	125.4		35.56	35.06	215.64	227.53	210.53	41.73	4
9.5	8.3	6.32	5.97	6.2	1.69	114.9	2.54	124.6		34.42	33.92	183.22	253.36	236.36	39.2	3
12.9	11.7	6.32	5.97	6.2	1.42	127.6	2.04	121.9		35.2	34.7	215.75	235.74	218.74	42.73	4
9.8	8.6	6.32	5.97	6.2	2.57	132.6	2.74	124.8		34.15	33.65	143.75	143.75	126.75	40.96	4
8.3	7.1	5.09	4.74	4.97	2.12	125.4	2.44	118.2		36.59	36.09	277.86	220.19	203.19	42.77	4
7.7	6.5	6.32	5.97	6.2	1.75	118.2	2.64	119.6		33.7	33.2	215.64	277.86	260.86	42.36	4
9.5	8.3	6.32	5.97	6.2	2.43	125.40	2.74	125.6		34.59	34.09	235.74	215.75	198.75	40.97	4
9.8	8.6	6.32	5.97	6.2	1.55	116.3	2.04	116.3		34.15	33.65	210.5	215.64	198.64	42.36	4
8.2	7	6.32	5.97	6.2	1.69	119.6	2.64	125.4		35.2	34.7	281.23	253.36	236.36	39.67	3
11.6	10.4	7.45	7.1	7.33	2.54	114.9	2.84	124.6		33.7	33.2	220.19	281.23	264.23	42.73	4
12.5	11.3	6.32	5.97	6.2	2.43	116.30	2.44	132.6		34.42	33.92	277.86	227.53	210.53	39.75	3
9.5	8.3	6.32	5.97	6.2	2.57	125.4	2.44	121.9		37.24	36.74	183.22	277.86	260.86	40.96	4
9.8	8.6	6.32	5.97	6.2	2.39	125.6	2.54	118.2		34.15	33.65	210.5	183.22	166.22	42.53	4
10.7	9.5	6.56	6.21	6.44	1.75	127.6	2.34	119.6		33.7	33.2	227.53	230.15	213.15	41.73	4
8.2	7	6.32	5.97	6.2	1.55	125.4	2.34	116.3		36.39	35.89	215.75	220.19	203.19	42.53	4
9.5	8.3	6.46	6.11	6.34	1.89	116.3	2.04	121.6		35.2	34.7	215.64	215.75	198.75	40.97	4
9.8	8.6	6.32	5.97	6.2	1.69	119.6	2.34	125.4		35.56	35.06	277.86	277.86	260.86	42.53	4
9.5	8.3	8.12	7.77	8	1.55	132.6	2.44	124.6		33.7	33.2	210.5	281.23	264.23	39.75	3
8.9	7.7	7.09	6.74	6.97	2.43	125.40	2.54	137.8		34.42	33.92	230.15	235.74	218.74	42.53	4
12.1	10.9	6.46	6.11	6.34	2.47	118.2	3.04	125.6		34.59	34.09	284.53	227.53	210.53	42.73	4
12.9	11.7	7.45	7.1	7.33	2.43	116.30	2.84	118.2		34.75	34.25	220.19	215.64	198.64	42.53	4
9.8	8.6	6.46	6.11	6.34	2.12	137.8	2.44	119.6		33.7	33.2	235.74	277.86	260.86	42.77	4
12.5	11.3	6.32	5.97	6.2	1.42	125.6	2.33	116.3		34.15	33.65	210.5	253.36	236.36	42.53	4
9.5	8.3	5.09	4.74	4.97	2.21	119.6	2.84	121.9		35.2	34.7	277.86	143.75	126.75	39.75	3
8.2	7	6.32	5.97	6.2	1.75	132.6	2.74	125.4		37.49	36.99	215.75	220.19	203.19	42.53	4
12.1	10.9	6.46	6.11	6.34	1.69	124.8	2.34	124.6		33.7	33.2	227.53	183.22	166.22	40.96	4
9.8	8.6	6.46	6.11	6.34	2.56	116.3	1.16	131.2		36.59	36.09	215.64	215.75	198.75	42.53	4
9.5	8.3	6.46	6.11	6.34	2.43	118.20	1.18	132.6		34.15	33.65	210.5	277.86	260.86	42.53	4

12.9	11.7	6.46	6.11	6.34	1.89	132.6	1.33	118.2		35.2	34.7	183.22	253.36	236.36	41.69	4
9.5	8.3	6.46	6.11	6.34	1.55	125.4	1.25	119.6		33.7	33.2	277.86	253.36	236.36	39.75	3
8.9	7.7	6.32	5.97	6.2	1.78	116.3	1.16	116.3		37.24	36.74	230.15	183.22	166.22	40.97	4
8.2	7	6.46	6.11	6.34	2.39	113.6	1.14	121.9		34.59	34.09	281.23	235.74	218.74	42.73	4
8.3	7.1	8.12	7.77	8	2.63	125.6	1.26	124.6		34.15	33.65	210.5	215.64	198.64	39.2	3
10.7	9.5	6.46	6.11	6.34	1.69	127.6	1.28	125.4		33.7	33.2	220.19	220.19	203.19	39.2	3
8.9	7.7	6.46	6.11	6.34	2.12	132.6	1.33	125.6		35.2	34.7	215.75	227.53	210.53	40.96	4
9.5	8.3	6.46	6.11	6.34	1.89	118.2	1.18	121.6		37.49	36.99	277.86	277.86	260.86	42.36	4
9.8	8.6	8.12	7.77	8	2.21	121.9	1.22	118.2		35.56	35.06	215.64	253.36	236.36	39.75	3
11.6	10.4	6.32	5.97	6.2	1.55	125.4	1.25	119.6		33.7	33.2	210.5	220.19	203.19	41.73	4
9.5	8.3	5.09	4.74	4.97	1.42	124.6	1.25	137.8		35.2	34.7	235.74	210.5	193.5	42.73	4
12.1	10.9	6.46	6.11	6.34	2.47	125.6	1.26	116.3		37.49	36.99	249.27	215.64	198.64	39.67	3
8.9	7.7	6.46	6.11	6.34	2.43	131.20	1.31	124.6		36.59	36.09	183.22	227.53	210.53	42.77	4
9.5	8.3	6.46	6.11	6.34	1.69	137.8	1.38	121.9		35.2	34.7	277.86	277.86	260.86	42.36	4
7.7	6.5	6.46	6.11	6.34	2.57	118.2	1.18	125.4		34.15	33.65	210.5	210.5	193.5	40.96	4
10.7	9.5	6.56	6.21	6.44	2.39	119.6	1.20	124.8		37.24	36.74	227.53	235.74	218.74	40.97	4
9.8	8.6	5.09	4.74	4.97	2.43	121.90	1.22	118.2		34.42	33.92	143.75	220.19	203.19	39.53	3
9.5	8.3	5.09	4.74	4.97	1.89	125.4	1.25	119.6		37.49	36.99	220.19	227.53	210.53	39.75	3
12.1	10.9	6.46	6.11	6.34	2.12	124.6	1.25	125.6		35.2	34.7	215.64	210.5	193.5	42.73	4
9.8	8.6	6.46	6.11	6.34	1.75	125.6	1.26	124.6		34.15	33.65	210.5	277.86	260.86	42.36	4
8.9	7.7	6.46	6.11	6.34	2.43	132.60	1.33	116.3		34.75	34.25	277.86	215.64	198.64	42.53	4
8.2	7	7.45	7.1	7.33	1.76	118.2	1.18	118.2		34.59	34.09	215.75	183.22	166.22	42.36	4
9.5	8.3	6.46	6.11	6.34	1.69	119.6	1.20	132.6		34.42	33.92	230.15	210.5	193.5	41.73	4
12.5	11.3	6.46	6.11	6.34	1.97	127.6	1.28	125.4		35.56	35.06	235.74	220.19	203.19	42.53	4
9.5	8.3	6.32	5.97	6.2	1.75	116.3	1.16	118.2		34.15	33.65	210.5	277.86	260.86	42.77	4
12.1	10.9	6.46	6.11	6.34	2.43	125.40	1.25	121.9		33.7	33.2	281.23	227.53	210.53	40.96	4
9.8	8.6	5.09	4.74	4.97	1.75	124.6	1.25	118.2		35.2	34.7	277.86	215.64	198.64	42.53	4
11.6	10.4	6.46	6.11	6.34	2.12	121.9	1.22	119.6		34.59	34.09	227.53	235.74	218.74	40.97	4
9.8	8.6	6.32	5.97	6.2	1.42	124.8	1.25	121.6		37.49	36.99	220.19	277.86	260.86	42.36	4
9.5	8.3	6.46	6.11	6.34	2.56	118.2	1.18	116.3		34.15	33.65	210.5	220.19	203.19	42.53	4
8.9	7.7	7.09	6.74	6.97	1.76	119.6	1.20	124.6		34.42	33.92	215.64	227.53	210.53	41.69	4
8.2	7	8.12	7.77	8	1.69	125.6	1.26	137.8		35.2	34.7	183.22	215.64	198.64	42.73	4
7.7	6.5	6.46	6.11	6.34	1.75	116.3	1.16	125.4		36.59	36.09	277.86	277.86	260.86	39.75	3
9.5	8.3	7.02	6.67	6.9	2.39	125.4	1.25	118.2		37.24	36.74	215.75	181.93	164.93	39.67	3
9.8	8.6	7.02	6.67	6.9	1.97	124.6	1.25	125.6		34.15	33.65	284.53	220.19	203.19	42.77	4
8.9	7.7	5.09	4.74	4.97	1.78	132.6	1.33	121.9		35.2	34.7	210.5	227.53	210.53	42.36	4
9.5	8.3	7.02	6.67	6.9	2.57	121.9	1.22	122.3		34.42	33.92	230.15	277.86	260.86	42.53	4
10.6	9.4	8.12	7.77	8	2.54	118.2	1.18	124.6		37.49	36.99	215.64	215.64	198.64	41.73	4
9.5	8.3	7.02	6.67	6.9	1.89	119.6	1.20	116.3		33.7	33.2	277.86	183.22	166.22	40.96	4
11.2	10	7.02	6.67	6.9	1.69	116.3	1.16	132.6		34.15	33.65	220.19	227.53	210.53	40.97	4
9.8	8.6	7.02	6.67	6.9	1.76	121.6	1.22	121.9		37.22	36.72	227.53	220.19	203.19	42.73	4
9.5	8.3	6.32	5.97	6.2	2.43	125.40	1.25	125.4		34.59	34.09	235.74	143.75	126.75	42.36	4
9.8	8.6	7.02	6.67	6.9	1.42	124.6	1.25	118.2		33.7	33.2	210.5	210.5	193.5	42.36	4
7.7	6.5	7.02	6.67	6.9	1.75	137.8	1.38	125.6		37.21	36.71	284.53	215.64	198.64	42.53	4
9.5	8.3	5.09	4.74	4.97	2.47	125.6	1.26	131.2		34.15	33.65	277.86	227.53	210.53	39.75	3
8.9	7.7	6.32	5.97	6.2	2.56	118.2	1.18	124.6		34.42	33.92	183.22	183.22	166.22	39.2	3
8.2	7	7.02	6.67	6.9	2.39	119.6	1.20	121.6		33.7	33.2	215.75	220.19	203.19	42.36	4
9.8	8.6	7.02	6.67	6.9	2.21	116.3	1.16	116.3		34.75	34.25	215.64	210.5	193.5	42.73	4
8.2	7	7.02	6.67	6.9	1.69	121.9	1.22	119.6		37.24	36.74	220.19	277.86	260.86	40.97	4
11.2	10	8.12	7.77	8	1.75	125.4	1.25	121.9		34.15	33.65	210.5	235.74	218.74	42.36	4
12.9	11.7	7.02	6.67	6.9	2.43	124.60	1.25	125.4		34.75	34.25	277.86	215.64	198.64	39.75	3
9.5	8.3	7.02	6.67	6.9	1.89	131.2	1.31	118.2		35.56	35.06	281.23	181.93	164.93	39.2	3
9.8	8.6	7.02	6.67	6.9	2.57	132.6	1.33	125.6		34.42	33.92	227.53	210.5	193.5	39.67	3
12.1	10.9	6.56	6.21	6.44	1.76	118.2	1.18	122.3		36.59	36.09	143.75	227.53	210.53	42.53	4
8.3	7.1	6.32	5.97	6.2	2.21	119.6	1.20	124.6		34.15	33.65	230.15	220.19	203.19	41.73	4
9.8	8.6	5.09	4.74	4.97	1.75	116.3	1.16	119.6		37.22	36.72	277.86	281.23	264.23	42.53	4
12.9	11.7	7.02	6.67	6.9	2.39	121.9	1.22	116.3		34.59	34.09	210.5	215.64	198.64	42.73	4
11.6	10.4	7.02	6.67	6.9	2.43	124.60	1.25	132.6		36.39	35.89	235.74	210.5	193.5	42.36	4
8.2	7	6.32	5.97	6.2	1.69	125.4	1.25	137.8		34.42	33.92	215.64	183.22	166.22	40.96	4
9.5	8.3	7.02	6.67	6.9	1.42	125.6	1.26	125.4		33.7	33.2	220.19	215.75	198.75	40.97	4
10.7	9.5	5.09	4.74	4.97	2.47	121.6	1.22	125.6		37.21	36.71	183.22	227.53	210.53	39.75	3
8.2	7	7.02	6.67	6.9	1.75	118.2	1.18	121.9		35.2	34.7	215.75	215.64	198.64	42.77	4
7.7	6.5	7.02	6.67	6.9	1.89	119.6	1.20	124.6		35.56	35.06	227.53	210.5	193.5	41.69	4
11.2	10	7.02	6.67	6.9	2.12	137.8	1.38	131.2		36.59	36.09	210.5	277.86	260.86	42.36	4

7.1	5.9	6.46	6.11	6.34	1.75	116.3	1.16	122.3		34.15	33.65	249.27	235.74	218.74	42.73	4
12.5	11.3	4.42	4.07	4.3	2.43	124.60	1.25	116.3		34.42	33.92	281.23	220.19	203.19	42.36	4
9.8	8.6	6.32	5.97	6.2	1.58	121.9	1.22	125.6		35.2	34.7	215.64	230.15	213.15	42.53	4
8.9	7.7	4.42	4.07	4.3	1.76	125.4	1.25	125.4		37.22	36.72	230.15	249.27	232.27	39.75	3
12.9	11.7	4.42	4.07	4.3	1.69	124.8	2.64	118.2		34.59	34.09	183.22	277.86	260.86	40.97	4
11.2	10	4.42	4.07	4.3	2.57	118.2	2.64	121.9		34.15	33.65	235.74	215.64	198.64	40.96	4
9.5	8.3	8.12	7.77	8	2.56	119.6	2.84	124.6		35.2	34.7	253.36	183.22	166.22	42.36	4
9.8	8.6	4.42	4.07	4.3	1.97	125.6	2.84	132.6		34.42	33.92	227.53	215.75	198.75	39.53	3
8.2	7	4.42	4.07	4.3	2.43	124.60	2.44	121.6		33.7	33.2	215.75	143.75	126.75	42.73	4
8.3	7.1	5.09	4.74	4.97	1.89	116.3	2.54	118.2		34.75	34.25	277.86	277.86	260.86	39.75	3
11.2	10	4.42	4.07	4.3	2.12	118.2	2.54	116.3		34.15	33.65	220.19	215.64	198.64	41.69	4
12.9	11.7	4.42	4.07	4.3	1.42	132.6	2.34	125.4		37.22	36.72	284.53	235.74	218.74	42.77	4
8.2	7	4.42	4.07	4.3	1.75	125.4	2.54	125.6		33.7	33.2	215.64	210.5	193.5	42.36	4
9.5	8.3	4.42	4.07	4.3	1.69	118.2	2.84	127.6		37.21	36.71	253.36	281.23	264.23	41.73	4
7.1	5.9	4.42	4.07	4.3	1.76	121.9	2.94	121.9		34.75	34.25	143.75	220.19	203.19	42.73	4
7.7	6.5	7.45	7.1	7.33	2.35	118.2	2.34	132.6		34.15	33.65	277.86	277.86	260.86	40.96	4
10.6	9.4	4.42	4.07	4.3	2.43	119.60	2.54	118.2		34.42	33.92	281.23	183.22	166.22	42.53	4
11.2	10	5.09	4.74	4.97	2.12	121.6	2.44	124.6		35.2	34.7	183.22	210.5	193.5	39.67	3
8.2	7	4.42	4.07	4.3	1.89	116.3	2.24	125.6		35.56	35.06	227.53	227.53	210.53	42.36	4
9.5	8.3	4.42	4.07	4.3	2.47	124.6	2.24	116.3		36.39	35.89	253.36	215.75	198.75	42.77	4
10.7	9.5	4.42	4.07	4.3	2.57	137.8	2.34	125.4		34.15	33.65	220.19	215.64	198.64	39.75	3
9.8	8.6	4.42	4.07	4.3	1.75	125.4	2.94	137.8		35.2	34.7	277.86	277.86	260.86	39.2	3
8.2	7	4.42	4.07	4.3	1.76	118.2	2.04	119.6		37.25	36.75	215.75	210.5	193.5	42.73	4
9.5	8.3	6.32	5.97	6.2	2.43	125.60	2.44	122.3		34.59	34.09	230.15	230.15	213.15	39.53	3
8.9	7.7	7.09	6.74	6.97	1.97	121.9	3.14	121.9		35.2	34.7	215.64	284.53	267.53	42.36	4
12.5	11.3	5.09	4.74	4.97	1.42	122.3	2.34	127.6		33.7	33.2	253.36	220.19	203.19	40.97	4
12.9	11.7	4.42	4.07	4.3	1.89	124.6	2.20	125.6		37.21	36.71	235.74	235.74	218.74	42.77	4
8.3	7.1	4.42	4.07	4.3	2.39	116.3	2.10	118.2		35.56	35.06	277.86	210.5	193.5	41.69	4
8.9	7.7	8.12	7.77	8	2.56	132.6	1.90	116.3		35.2	34.7	249.27	277.86	260.86	41.73	4
9.5	8.3	8.12	7.77	8	2.21	121.9	1.80	125.4		33.7	33.2	230.15	215.75	198.75	40.96	4
11.2	10	4.42	4.07	4.3	2.47	125.4	2.40	119.6		34.15	33.65	220.19	227.53	210.53	42.36	4
9.5	8.3	4.42	4.07	4.3	2.43	118.20	2.00	124.6		34.75	34.25	253.36	215.64	198.64	42.73	4
12.9	11.7	4.42	4.07	4.3	1.76	125.6	2.00	124.8		37.22	36.72	227.53	210.5	193.5	39.75	3
7.7	6.5	5.09	4.74	4.97	1.78	131.2	2.00	121.9		37.24	36.74	277.86	183.22	166.22	40.97	4
11.6	10.4	4.42	4.07	4.3	1.75	124.6	2.20	118.2		36.59	36.09	183.22	277.86	260.86	39.2	3
12.9	11.7	4.42	4.07	4.3	1.89	121.6	2.00	121.6		34.15	33.65	215.75	230.15	213.15	42.36	4
9.8	8.6	4.42	4.07	4.3	1.69	116.3	1.70	119.6		34.42	33.92	215.64	281.23	264.23	39.75	3
8.2	7	4.42	4.07	4.3	2.21	119.6	2.00	125.4		35.2	34.7	253.36	210.5	193.5	39.67	3
12.9	11.7	4.42	4.07	4.3	2.35	121.9	2.10	116.3		34.59	34.09	281.23	220.19	203.19	41.69	4
8.3	7.1	4.42	4.07	4.3	2.43	125.40	2.10	127.6		37.49	36.99	277.86	215.75	198.75	42.73	4
12.1	10.9	5.09	4.74	4.97	1.42	118.2	2.40	125.6		34.15	33.65	230.15	277.86	260.86	42.36	4
10.7	9.5	6.56	6.21	6.44	2.57	125.6	2.50	118.2		35.56	35.06	220.19	215.64	198.64	40.96	4
12.9	11.7	4.42	4.07	4.3	1.97	122.3	2.10	121.9		33.7	33.2	227.53	210.5	193.5	40.97	4
7.7	6.5	6.46	6.11	6.34	1.76	124.6	1.90	124.6		34.42	33.92	143.75	235.74	218.74	42.77	4
11.6	10.4	6.32	5.97	6.2	1.75	119.6	2.20	132.6		35.2	34.7	253.36	249.27	232.27	39.75	3
9.5	8.3	6.46	6.11	6.34	1.69	116.3	2.10	125.4		33.7	33.2	277.86	183.22	166.22	42.36	4
8.9	7.7	8.12	7.77	8	2.47	132.6	2.40	122.3		37.49	36.99	235.74	277.86	260.86	41.69	4
11.2	10	8.12	7.77	8	2.43	137.80	1.80	121.9		37.24	36.74	215.75	210.5	193.5	42.53	4
8.2	7	8.12	7.77	8	1.78	125.4	2.20	116.3		33.7	33.2	183.22	227.53	210.53	42.77	4
8.9	7.7	6.46	6.11	6.34	2.39	125.6	3.05	125.6		36.39	35.89	215.64	143.75	126.75	42.73	4
9.8	8.6	6.46	6.11	6.34	2.12	121.9	1.90	137.8		34.15	33.65	277.86	220.19	203.19	41.73	4
10.6	9.4	6.46	6.11	6.34	1.42	124.6	1.90	127.6		33.7	33.2	253.36	215.64	198.64	42.36	4
12.9	11.7	6.46	6.11	6.34	1.76	131.2	2.00	118.2		34.42	33.92	220.19	210.5	193.5	40.97	4
12.9	11.7	6.46	6.11	6.34	2.54	122.3	2.10	125.4		35.2	34.7	227.53	277.86	260.86	39.2	3
8.9	7.7	6.46	6.11	6.34	1.69	116.3	2.00	124.6		33.7	33.2	284.53	215.75	198.75	40.96	4
9.5	8.3	6.46	6.11	6.34	2.43	125.60	2.30	124.8		34.15	33.65	281.23	230.15	213.15	39.53	3
8.2	7	7.09	6.74	6.97	2.56	125.4	2.30	121.9		34.59	34.09	277.86	235.74	218.74	42.36	4
9.8	8.6	6.46	6.11	6.34	1.65	118.2	1.70	125.6		33.7	33.2	249.27	210.5	193.5	42.77	4
9.5	8.3	5.09	4.74	4.97	1.89	121.9	2.10	122.3		36.39	35.89	215.75	281.23	264.23	39.75	3
11.6	10.4	6.32	5.97	6.2	2.21	124.6	2.00	118.2		35.56	35.06	183.22	277.86	260.86	39.67	3
8.3	7.1	6.46	6.11	6.34	2.47	132.6	2.10	127.6		33.7	33.2	220.19	227.53	210.53	40.97	4
7.7	6.5	7.45	7.1	7.33	2.57	121.6	1.90	125.4		34.42	33.92	277.86	220.19	203.19	42.36	4
9.5	8.3	8.12	7.77	8	2.35	118.2	2.50	119.6		35.2	34.7	227.53	210.5	193.5	41.69	4

8.2	7	6.46	6.11	6.34	2.43	116.30	2.00	132.6		33.7	33.2	235.74	215.64	198.64	39.2	3
9.5	8.3	6.46	6.11	6.34	1.42	125.4	2.10	124.6		37.24	36.74	215.64	183.22	166.22	40.96	4
12.9	11.7	6.46	6.11	6.34	1.75	125.6	2.30	131.2		34.15	33.65	230.15	277.86	260.86	41.73	4
9.8	8.6	6.32	5.97	6.2	2.12	127.6	1.88	125.6		33.7	33.2	253.36	215.75	198.75	42.36	4
8.9	7.7	6.56	6.21	6.44	1.78	121.9	2.00	137.8		37.21	36.71	277.86	284.53	267.53	42.73	4
10.7	9.5	6.46	6.11	6.34	2.39	132.6	1.80	119.6		35.56	35.06	284.53	210.5	193.5	39.53	3
7.1	5.9	6.46	6.11	6.34	2.73	118.2	1.80	125.4		33.7	33.2	281.23	230.15	213.15	40.97	4
12.5	11.3	6.46	6.11	6.34	2.56	124.6	2.00	122.3		34.15	33.65	220.19	215.64	198.64	42.77	4
9.5	8.3	6.46	6.11	6.34	1.40	125.60	2.20	127.6		34.42	33.92	143.75	277.86	260.86	42.36	4
11.2	10	6.46	6.11	6.34	1.75	116.3	2.10	118.2		33.7	33.2	277.86	220.19	203.19	39.75	3
8.2	7	6.46	6.11	6.34	2.47	125.4	1.90	131.2		34.75	34.25	249.27	227.53	210.53	42.36	4
9.5	8.3	6.46	6.11	6.34	1.55	137.8	1.80	124.6		35.2	34.7	183.22	235.74	218.74	39.67	3
9.8	8.6	6.56	6.21	6.44	1.97	119.6	1.20	121.6		33.7	33.2	215.64	210.5	193.5	42.53	4
11.2	10	6.46	6.11	6.34	1.42	122.3	1.22	125.6		34.59	34.09	253.36	284.53	267.53	42.73	4
12.9	11.7	5.09	4.74	4.97	2.12	121.9	1.22	125.4		36.59	36.09	215.75	277.86	260.86	40.96	4
9.5	8.3	6.46	6.11	6.34	1.55	127.6	2.30	118.2		34.42	33.92	277.86	183.22	166.22	40.97	4
9.8	8.6	6.46	6.11	6.34	1.75	125.6	2.20	132.6		35.56	35.06	235.74	215.75	198.75	42.53	4
7.1	5.9	6.46	6.11	6.34	2.57	118.2	2.10	137.8		34.15	33.65	220.19	215.64	198.64	41.69	4
9.5	8.3	4.42	4.07	4.3	1.69	116.3	1.80	127.6		37.25	36.75	249.27	220.19	203.19	39.53	3
10.7	9.5	4.42	4.07	4.3	1.78	125.4	1.80	131.2		37.21	36.71	230.15	210.5	193.5	41.73	4
8.2	7	4.42	4.07	4.3	1.89	119.6	1.70	124.6		36.39	35.89	253.36	277.86	260.86	42.53	4
9.8	8.6	5.09	4.74	4.97	1.55	124.6	2.40	116.3		34.42	33.92	277.86	281.23	264.23	39.75	3
7.7	6.5	4.42	4.07	4.3	1.75	124.8	2.10	121.6		34.15	33.65	230.15	227.53	210.53	42.73	4
12.9	11.7	4.42	4.07	4.3	1.58	121.9	1.90	125.6		34.59	34.09	227.53	143.75	126.75	42.77	4
9.8	8.6	4.42	4.07	4.3	1.75	118.2	2.10	122.3		37.21	36.71	143.75	230.15	213.15	42.53	4
9.5	8.3	8.09	7.74	7.97	2.54	121.6	2.00	119.6		37.22	36.72	215.64	277.86	260.86	40.97	4
11.2	10	8.09	7.74	7.97	2.12	119.6	2.00	121.9		37.21	36.71	277.86	210.5	193.5	39.53	3
12.5	11.3	5.09	4.74	4.97	1.42	125.4	2.20	127.6		33.7	33.2	253.36	235.74	218.74	40.96	4
7.1	5.9	8.09	7.74	7.97	1.89	116.3	2.30	119.6		36.59	36.09	220.19	215.64	198.64	42.53	4
8.9	7.7	8.09	7.74	7.97	2.39	127.6	1.70	131.2		35.56	35.06	183.22	220.19	203.19	39.2	3
10.6	9.4	6.32	5.97	6.2	1.55	125.6	1.80	118.2		34.59	34.09	215.75	183.22	166.22	42.77	4
11.2	10	8.09	7.74	7.97	2.47	118.2	2.00	124.6		37.21	36.71	281.23	215.75	198.75	42.73	4
9.5	8.3	8.09	7.74	7.97	2.56	121.9	2.20	125.6		34.15	33.65	277.86	227.53	210.53	42.53	4
9.8	8.6	8.09	7.74	7.97	2.35	124.6	1.80	132.6		37.49	36.99	227.53	210.5	193.5	39.67	3
12.5	11.3	8.09	7.74	7.97	1.75	132.6	1.90	121.9		34.75	34.25	253.36	249.27	232.27	40.97	4
9.5	8.3	8.12	7.77	8	2.57	125.4	2.00	118.2		35.2	34.7	235.74	281.23	264.23	42.36	4
10.7	9.5	8.09	7.74	7.97	1.69	122.3	2.20	137.8		36.39	35.89	143.75	215.64	198.64	42.53	4
7.7	6.5	8.09	7.74	7.97	1.89	121.9	2.30	137.8		34.15	33.65	220.19	230.15	213.15	41.73	4
11.2	10	8.09	7.74	7.97	2.12	116.3	2.30	125.6		37.21	36.71	277.86	183.22	166.22	39.75	3
9.5	8.3	8.09	7.74	7.97	1.78	125.6	2.90	124.6		33.7	33.2	215.75	235.74	218.74	41.69	4
9.5	8.3	8.09	7.74	7.97	1.55	137.8	1.38	127.6		34.42	33.92	215.64	253.36	236.36	42.53	4
8.2	7	8.09	7.74	7.97	1.42	127.6	1.28	121.9		37.49	36.99	253.36	227.53	210.53	40.96	4
11.2	10	6.32	5.97	6.2	2.63	118.2	1.18	122.3		34.59	34.09	281.23	215.75	198.75	42.53	4
7.1	5.9	8.09	7.74	7.97	2.21	125.4	1.25	124.6		37.24	36.74	227.53	277.86	260.86	42.73	4
9.8	8.6	7.09	6.74	6.97	1.89	124.6	1.25	116.3		37.25	36.75	277.86	220.19	203.19	42.36	4
9.5	8.3	8.09	7.74	7.97	1.97	124.8	1.25	121.6		34.42	33.92	183.22	284.53	267.53	39.53	3
12.1	10.9	5.09	4.74	4.97	2.47	121.9	1.22	118.2		36.59	36.09	230.15	215.64	198.64	40.97	4
8.3	7.1	8.09	7.74	7.97	2.54	125.6	1.26	119.6		35.56	35.06	220.19	253.36	236.36	42.53	4
9.5	8.3	8.09	7.74	7.97	1.55	122.3	2.47	125.6		37.24	36.74	215.75	143.75	126.75	42.77	4
8.3	7.1	8.09	7.74	7.97	2.12	118.2	2.56	124.6		34.59	34.09	277.86	277.86	260.86	39.67	3
12.5	11.3	8.09	7.74	7.97	2.56	127.6	2.35	118.2		34.42	33.92	281.23	281.23	264.23	39.53	3
12.9	11.7	8.09	7.74	7.97	1.42	125.4	1.25	132.6		34.15	33.65	235.74	183.22	166.22	42.36	4
11.2	10	8.09	7.74	7.97	2.35	119.6	2.57	121.9		36.39	35.89	227.53	227.53	210.53	42.77	4
8.2	7	8.09	7.74	7.97	2.57	132.6	2.56	127.6		36.59	36.09	215.64	253.36	236.36	42.73	4
9.8	8.6	5.09	4.74	4.97	2.21	124.6	1.97	122.3		33.7	33.2	277.86	220.19	203.19	39.75	3
8.9	7.7	8.09	7.74	7.97	1.40	131.20	2.43	125.6		37.24	36.74	253.36	277.86	260.86	40.97	4
8.3	7.1	8.09	7.74	7.97	1.55	125.6	1.89	127.6		35.56	35.06	143.75	215.75	198.75	42.53	4
10.7	9.5	8.09	7.74	7.97	1.78	137.8	2.12	121.9		35.2	34.7	220.19	230.15	213.15	42.36	4
8.2	7	8.09	7.74	7.97	2.39	119.6	1.42	122.3		34.75	34.25	183.22	215.64	198.64	42.53	4
7.7	6.5	8.12	7.77	8	2.47	125.4	1.75	132.6		34.42	33.92	215.75	253.36	236.36	41.73	4
12.1	10.9	8.09	7.74	7.97	2.73	122.3	1.69	125.6		37.49	36.99	277.86	235.74	218.74	40.96	4
9.8	8.6	5.09	4.74	4.97	1.69	127.6	1.76	121.9		37.24	36.74	253.36	277.86	260.86	42.53	4
9.5	8.3	8.09	7.74	7.97	1.75	118.2	2.35	119.6		35.56	35.06	253.36	249.27	232.27	40.97	4
8.9	7.7	4.42	4.07	4.3	2.54	131.2	2.43	118.2		35.2	34.7	183.22	230.15	213.15	42.73	4

11.2	10	7.45	7.1	7.33	2.56	124.6	2.12	125.6		33.7	33.2	235.74	220.19	203.19	39.75	3
12.9	11.7	6.32	5.97	6.2	2.21	121.6	1.22	124.6		34.75	34.25	215.64	227.53	210.53	42.53	4
7.1	5.9	4.42	4.07	4.3	2.35	125.6	1.26	116.3		34.59	34.09	220.19	281.23	264.23	40.97	4
8.3	7.1	4.42	4.07	4.3	2.39		2.12	119.6		33.7	33.2	227.53	210.5	193.5	42.73	4
9.8	8.6	5.09	4.74	4.97	1.58		2.56	127.6		34.42	33.92	277.86	227.53	210.53	42.36	4
8.9	7.7	4.42	4.07	4.3	1.97		2.57	125.6		34.15	33.65	253.36	277.86	260.86	42.53	4
	8.700344828		5.982034483	6.212034483			2.01					34.57151724		214.349138	41.54	4
													231.349138			4

TABLE 11: Data file.

Serum electrolytes.

PLT: platelet count; WBC: white blood cell count; AST: aspartate aminotransferase; ALT: alanine aminotransferase; Cr: creatinine; UA: uric acid; FBG: fasting blood glucose; Mg: magnesium; Cl: chloride; TSH: thyroid-stimulating hormone

SN	TC (mmol/L)	TG (mmol/L)	1.56	HDL-C (mmol/L)	LDL-C (mmol/L)	WtHr	Cardiometabolic index	Control group	TC (mmol/L)	TG (mmol/L)	HDL-C (mmol/L)				
1	4.96	5.16	1.92	2.06	1.42	2.01	2.31	0.54	0.13	4.96	4.99	1.92	1.8	1.42	1.56
2	4.12	4.32	1.74	1.88	1.61	2.2	1.96	0.51	0.13	4.12	4.15	1.74	1.62	1.61	1.75
3	3.91	4.11	0.79	0.93	1.71	2.3	2.69	0.49	0.9	3.91	3.94	0.79	0.67	1.71	1.85
4	4.51	4.71	1.92	2.06	1.43	2.02	1.72	0.51	0.9	4.51	4.54	1.92	1.8	1.43	1.57
5	4.82	5.02	1.92	2.06	1.61	2.2	1.96	0.45	0.13	4.82	4.85	1.92	1.8	1.61	1.75
6	4.51	4.71	0.79	0.93	1.71	2.3	2.31	0.49	0.13	4.51	4.54	0.79	0.67	1.71	1.85
7	4.82	5.02	1.92	2.06	1.76	2.35	2.61	0.51	0.13	4.82	4.85	1.92	1.8	1.76	1.9
8	4.51	4.71	0.91	1.05	1.42	2.01	1.96	0.54	0.9	4.51	4.54	0.91	0.79	1.42	1.56
9	4.96	5.16	0.79	0.93	1.61	2.2	1.72	0.45	0.13	4.96	4.99	0.79	0.67	1.61	1.75
10	4.51	4.71	1.62	1.76	1.42	2.01	2.64	0.49	0.13	4.51	4.54	1.62	1.5	1.42	1.56
11	3.91	4.11	0.91	1.05	1.71	2.3	1.96	0.51	0.13	3.91	3.94	0.91	0.79	1.71	1.85
12	4.51	4.71	1.92	2.06	1.42	2.01	2.31	0.53	0.9	4.51	4.54	1.92	1.8	1.42	1.56
13	4.68	4.88	1.74	1.88	1.43	2.02	1.72	0.53	0.13	4.68	4.71	1.74	1.62	1.43	1.57
14	4.51	4.71	0.89	1.03	1.78	2.37	1.96	0.51	0.13	4.51	4.54	0.89	0.77	1.78	1.92
15	4.82	5.02	1.74	1.88	1.71	2.3	2.69	0.49	0.13	4.82	4.85	1.74	1.62	1.71	1.85
16	4.51	4.71	1.36	1.5	1.76	2.35	2.64	0.54	0.13	4.51	4.54	1.36	1.24	1.76	1.9
17	3.91	4.11	1.74	1.88	1.71	2.3	1.96	0.53	0.9	3.91	3.94	1.74	1.62	1.71	1.85
18	4.51	4.71	1.62	1.76	1.61	2.2	1.72	0.51	0.13	4.51	4.54	1.62	1.5	1.61	1.75
19	4.96	5.16	1.74	1.88	1.43	2.02	2.61	0.49	0.13	4.96	4.99	1.74	1.62	1.43	1.57
20	4.51	4.71	1.92	2.06	1.76	2.35	1.96	0.45	0.9	4.51	4.54	1.92	1.8	1.76	1.9
21	4.68	4.88	1.51	1.65	1.43	2.02	2.31	0.51	0.13	4.68	4.71	1.51	1.39	1.43	1.57
22	3.91	4.11	0.79	0.93	1.71	2.3	1.72	0.54	0.13	3.91	3.94	0.79	0.67	1.71	1.85
23	4.82	5.02	1.51	1.65	1.61	2.2	1.96	0.49	0.9	4.82	4.85	1.51	1.39	1.61	1.75
24	4.51	4.71	0.91	1.05	1.42	2.01	2.69	0.51	0.13	4.51	4.54	0.91	0.79	1.42	1.56
25	4.96	5.16	0.89	1.03	1.92	2.51	2.43	0.44	0.13	4.96	4.99	0.89	0.77	1.92	2.06
26	3.91	4.11	1.51	1.65	1.42	2.01	1.72	0.52	0.9	3.91	3.94	1.51	1.39	1.42	1.56
27	4.68	4.88	1.92	2.06	1.78	2.37	2.31	0.49	0.13	4.68	4.71	1.92	1.8	1.78	1.92
28	4.51	4.71	1.13	1.27	1.78	2.37	2.64	0.51	0.13	4.51	4.54	1.13	1.01	1.78	1.92
29	4.82	5.02	0.89	1.03	1.71	2.3	1.72	0.54	0.9	4.82	4.85	0.89	0.77	1.71	1.85
30	3.91	4.11	1.51	1.65	1.61	2.2	2.31	0.45	0.13	3.91	3.94	1.51	1.39	1.61	1.75
31	3.88	4.08	1.92	2.06	1.47	2.06	2.69	0.49	0.13	3.88	3.91	1.92	1.8	1.47	1.61
32	4.51	4.71	0.91	1.05	1.78	2.37	1.96	0.53	0.9	4.51	4.54	0.91	0.79	1.78	1.92
33	4.36	4.56	1.92	2.06	1.76	2.35	1.72	0.54	0.13	4.36	4.39	1.92	1.8	1.76	1.9
34	4.82	5.02	1.74	1.88	1.61	2.2	2.61	0.51	0.13	4.82	4.85	1.74	1.62	1.61	1.75
35	3.91	4.11	0.79	0.93	1.71	2.3	1.96	0.44	0.9	3.91	3.94	0.79	0.67	1.71	1.85
36	4.51	4.71	1.74	1.88	1.92	2.51	1.72	0.49	0.13	4.51	4.54	1.74	1.62	1.92	2.06
37	4.36	4.56	1.62	1.76	1.42	2.01	2.64	0.51	0.13	4.36	4.39	1.62	1.5	1.42	1.56
38	4.68	4.88	1.92	2.06	1.42	2.01	1.96	0.45	0.9	4.68	4.71	1.92	1.8	1.42	1.56
39	4.82	5.02	1.36	1.5	1.78	2.37	1.72	0.47	0.13	4.82	4.85	1.36	1.24	1.78	1.92
40	4.51	4.71	0.79	0.93	1.61	2.2	2.31	0.51	0.13	4.51	4.54	0.79	0.67	1.61	1.75
41	3.91	4.11	0.91	1.05	1.76	2.35	1.96	0.49	0.9	3.91	3.94	0.91	0.79	1.76	1.9
42	4.96	5.16	0.99	1.13	1.71	2.3	2.73	0.54	0.13	4.96	4.99	0.99	0.87	1.71	1.85
43	4.96	5.16	0.89	1.03	1.78	2.37	1.72	0.53	0.9	4.96	4.99	0.89	0.77	1.78	1.92
44	4.51	4.71	1.92	2.06	1.43	2.02	1.96	0.51	0.13	4.51	4.54	1.92	1.8	1.43	1.57
45	3.79	3.99	1.62	1.76	1.61	2.2	2.69	0.49	0.9	3.79	3.82	1.62	1.5	1.61	1.75
46	4.96	5.16	0.91	1.05	1.78	2.37	1.72	0.45	0.13	4.96	4.99	0.91	0.79	1.78	1.92
47	3.91	4.11	1.36	1.5	1.71	2.3	1.96	0.51	0.9	3.91	3.94	1.36	1.24	1.71	1.85

48	4.82	5.02	0.91	1.05	1.59	2.18	2.31	0.54	0.9			4.82	4.85	0.91	0.79	1.59	1.73
49	4.51	4.71	1.62	1.76	1.78	2.37	1.72	0.53	0.13			4.51	4.54	1.62	1.5	1.78	1.92
50	4.36	4.56	0.91	1.05	1.42	2.01	1.96	0.49	0.9			4.36	4.39	0.91	0.79	1.42	1.56
51	4.96	5.16	1.74	1.88	1.42	2.01	2.61	0.51	0.9			4.96	4.99	1.74	1.62	1.42	1.56
52	4.96	5.16	1.51	1.65	1.61	2.2	1.72	0.44	0.13			4.96	4.99	1.51	1.39	1.61	1.75
53	4.68	4.88	1.74	1.88	1.43	2.02	2.69	0.45	0.9			4.68	4.71	1.74	1.62	1.43	1.57
54	4.51	4.71	0.79	0.93	1.42	2.01	1.72	0.51	0.9			4.51	4.54	0.79	0.67	1.42	1.56
55	4.82	5.02	1.74	1.88	1.71	2.3	2.31	0.54	0.13			4.82	4.85	1.74	1.62	1.71	1.85
56	4.17	4.37	0.89	1.03	1.78	2.37	1.72	0.47	0.9			4.17	4.2	0.89	0.77	1.78	1.92
57	4.96	5.16	1.74	1.88	1.42	2.01	2.43	0.53	0.9			4.96	4.99	1.74	1.62	1.42	1.56
58	3.91	4.11	1.13	1.27	1.66	2.25	2.69	0.51	0.13			3.91	3.94	1.13	1.01	1.66	1.8
59	4.51	4.71	1.74	1.88	1.61	2.2	1.96	0.49	0.9			4.51	4.54	1.74	1.62	1.61	1.75
60	3.88	4.08	0.89	1.03	1.42	2.01	2.64	0.54	0.9			3.88	3.91	0.89	0.77	1.42	1.56
61	4.36	4.56	1.74	1.88	1.43	2.02	2.31	0.51	0.13			4.36	4.39	1.74	1.62	1.43	1.57
62	4.96	5.16	0.91	1.05	1.42	2.01	1.96	0.45	0.9			4.96	4.99	0.91	0.79	1.42	1.56
63	4.96	5.16	1.74	1.88	1.71	2.3	2.76	0.49	0.9			4.96	4.99	1.74	1.62	1.71	1.85
64	3.91	4.11	1.92	2.06	1.78	2.37	2.31	0.51	0.13			3.91	3.94	1.92	1.8	1.78	1.92
65	4.68	4.88	1.74	1.88	1.76	2.35	1.96	0.52	0.9			4.68	4.71	1.74	1.62	1.76	1.9
66	4.51	4.71	1.51	1.65	1.43	2.02	2.69	0.54	0.9			4.51	4.54	1.51	1.39	1.43	1.57
67	3.96	4.16	1.74	1.88	1.61	2.2	2.31	0.49	0.9			3.96	3.99	1.74	1.62	1.61	1.75
68	4.36	4.56	1.62	1.76	1.71	2.3	1.96	0.51	0.9			4.36	4.39	1.62	1.5	1.71	1.85
69	4.51	4.71	1.74	1.88	1.78	2.37	1.72	0.44	0.13			4.51	4.54	1.74	1.62	1.78	1.92
70	3.79	3.99	1.36	1.5	1.92	2.51	2.69	0.45	0.13			3.79	3.82	1.36	1.24	1.92	2.06
71	3.91	4.11	1.92	2.06	1.43	2.02	1.96	0.51	0.13			3.91	3.94	1.92	1.8	1.43	1.57
72	4.96	5.16	1.64	1.78	1.59	2.18	1.72	0.49	0.13			4.96	4.99	1.64	1.52	1.59	1.73
73	4.51	4.71	0.91	1.05	1.42	2.01	2.61	0.54	0.13			4.51	4.54	0.91	0.79	1.42	1.56
74	4.96	5.16	0.79	0.93	1.61	2.2	1.96	0.51	0.13			4.96	4.99	0.79	0.67	1.61	1.75
75	4.68	4.88	1.51	1.65	1.42	2.01	1.72	0.56	0.13			4.68	4.71	1.51	1.39	1.42	1.56
76	3.88	4.08	1.92	2.06	1.71	2.3	2.76	0.49	0.13			3.88	3.91	1.92	1.8	1.71	1.85
77	4.82	5.02	1.62	1.76	1.42	2.01	1.96	0.51	0.13			4.82	4.85	1.62	1.5	1.42	1.56
78	3.91	4.11	0.79	0.93	1.43	2.02	1.72	0.53	0.13			3.91	3.94	0.79	0.67	1.43	1.57
79	4.36	4.56	0.89	1.03	1.42	2.01	2.31	0.54	0.9			4.36	4.39	0.89	0.77	1.42	1.56
80	3.79	3.99	0.99	1.13	1.47	2.06	1.96	0.45	0.13			3.79	3.82	0.99	0.87	1.47	1.61
81	4.96	5.16	1.74	1.88	1.42	2.01	1.72	0.51	0.13			4.96	4.99	1.74	1.62	1.42	1.56
82	4.96	5.16	1.92	2.06	1.92	2.51	2.69	0.49	0.13			4.96	4.99	1.92	1.8	1.92	2.06
83	3.91	4.11	1.74	1.88	1.42	2.01	1.96	0.54	0.13			3.91	3.94	1.74	1.62	1.42	1.56
84	4.51	4.71	0.79	0.93	1.47	2.06	1.72	0.44	0.13			4.51	4.54	0.79	0.67	1.47	1.61
85	3.96	4.16	1.74	1.88	1.42	2.01	2.31	0.51	0.13			3.96	3.99	1.74	1.62	1.42	1.56
86	4.68	4.88	0.91	1.05	1.71	2.3	1.96	0.49	0.13			4.68	4.71	0.91	0.79	1.71	1.85
87	4.51	4.71	1.74	1.88	1.61	2.2	1.72	0.47	0.13			4.51	4.54	1.74	1.62	1.61	1.75
88	3.88	4.08	1.51	1.65	1.76	2.35	2.64	0.51	0.9			3.88	3.91	1.51	1.39	1.76	1.9
89	3.79	3.99	1.74	1.88	1.71	2.3	1.96	0.54	0.9			3.79	3.82	1.74	1.62	1.71	1.85
90	4.51	4.71	1.62	1.76	1.71	2.3	1.72	0.49	0.13			4.51	4.54	1.62	1.5	1.71	1.85
91	3.91	4.11	1.74	1.88	1.78	2.37	2.69	0.51	0.13			3.91	3.94	1.74	1.62	1.78	1.92
92	4.36	4.56	1.92	2.06	1.71	2.3	1.96	0.45	0.13			4.36	4.39	1.92	1.8	1.71	1.85
93	4.51	4.71	1.74	1.88	1.59	2.18	2.31	0.53	0.13			4.51	4.54	1.74	1.62	1.59	1.73
94	4.96	5.16	0.79	0.93	1.71	2.3	2.61	0.51	0.9			4.96	4.99	0.79	0.67	1.71	1.85
95	4.96	5.16	1.74	1.88	1.92	2.51	1.96	0.54	0.13			4.96	4.99	1.74	1.62	1.92	2.06
96	4.51	4.71	1.36	1.5	1.61	2.2	1.72	0.49	0.9			4.51	4.54	1.36	1.24	1.61	1.75
97	3.79	3.99	1.64	1.78	1.42	2.01	2.43	0.52	0.13			3.79	3.82	1.64	1.52	1.42	1.56
98	4.68	4.88	1.74	1.88	1.76	2.35	1.96	0.51	0.13			4.68	4.71	1.74	1.62	1.76	1.9
99	4.51	4.71	0.91	1.05	1.42	2.01	2.69	0.45	0.9			4.51	4.54	0.91	0.79	1.42	1.56
100	4.49	4.69	1.92	2.06	1.71	2.3	2.31	0.49	0.13			4.49	4.52	1.92	1.8	1.71	1.85
101	3.88	4.08	1.74	1.88	1.42	2.01	1.96	0.51	0.9			3.88	3.91	1.74	1.62	1.42	1.56
102	4.51	4.71	0.79	0.93	1.78	2.37	2.73	0.54	0.13			4.51	4.54	0.79	0.67	1.78	1.92
103	3.79	3.99	1.51	1.65	1.42	2.01	1.72	0.44	0.13			3.79	3.82	1.51	1.39	1.42	1.56
104	4.82	5.02	1.74	1.88	1.66	2.25	1.96	0.51	0.9			4.82	4.85	1.74	1.62	1.66	1.8
105	4.96	5.16	1.62	1.76	1.42	2.01	2.31	0.53	0.13			4.96	4.99	1.62	1.5	1.42	1.56
106	4.96	5.16	0.89	1.03	1.78	2.37	2.69	0.49	0.13			4.96	4.99	0.89	0.77	1.78	1.92
107	4.36	4.56	1.74	1.88	1.42	2.01	1.96	0.54	0.9			4.36	4.39	1.74	1.62	1.42	1.56
108	4.68	4.88	1.92	2.06	1.71	2.3	2.61	0.51	0.13			4.68	4.71	1.92	1.8	1.71	1.85
109	3.91	4.11	0.79	0.93	1.61	2.2	2.31	0.56	0.13			3.91	3.94	0.79	0.67	1.61	1.75
110	4.82	5.02	1.74	1.88	1.43	2.02	1.96	0.49	0.13			4.82	4.85	1.74	1.62	1.43	1.57

111	3.79	3.99	0.99	1.13	1.78	2.37	1.72	0.47	0.9			3.79	3.82	0.99	0.87	1.78	1.92
112	3.96	4.16	0.91	1.05	1.61	2.2	2.69	0.51	0.13			3.96	3.99	0.91	0.79	1.61	1.75
113	3.88	4.08	1.74	1.88	1.66	2.25	1.96	0.54	0.13			3.88	3.91	1.74	1.62	1.66	1.8
114	3.91	4.11	1.62	1.76	1.78	2.37	2.64	0.49	0.9			3.91	3.94	1.62	1.5	1.78	1.92
115	4.96	5.16	1.92	2.06	1.78	2.37	2.31	0.53	0.13			4.96	4.99	1.92	1.8	1.78	1.92
116	4.96	5.16	1.74	1.88	1.42	2.01	1.96	0.51	0.13			4.96	4.99	1.74	1.62	1.42	1.56
117	4.51	4.71	0.79	0.93	1.43	2.02	2.69	0.45	0.13			4.51	4.54	0.79	0.67	1.43	1.57
118	4.82	5.02	1.36	1.5	1.42	2.01	2.76	0.54	0.13			4.82	4.85	1.36	1.24	1.42	1.56
119	4.17	4.37	1.74	1.88	1.71	2.3	1.96	0.51	0.13			4.17	4.2	1.74	1.62	1.71	1.85
120	3.91	4.11	1.13	1.27	1.42	2.01	1.72	0.49	0.9			3.91	3.94	1.13	1.01	1.42	1.56
121	4.68	4.88	0.91	1.05	1.61	2.2	2.31	0.44	0.9			4.68	4.71	0.91	0.79	1.61	1.75
122	4.36	4.56	1.74	1.88	1.42	2.01	1.96	0.56	0.13			4.36	4.39	1.74	1.62	1.42	1.56
123	3.88	4.08	1.92	2.06	1.78	2.37	2.43	0.51	0.13			3.88	3.91	1.92	1.8	1.78	1.92
124	4.82	5.02	1.62	1.76	1.42	2.01	2.69	0.49	0.9			4.82	4.85	1.62	1.5	1.42	1.56
125	3.91	4.11	1.74	1.88	1.76	2.35	1.96	0.54	0.13			3.91	3.94	1.74	1.62	1.76	1.9
126	3.96	4.16	0.79	0.93	1.42	2.01	2.31	0.45	0.13			3.96	3.99	0.79	0.67	1.42	1.56
127	4.96	5.16	0.89	1.03	1.71	2.3	2.61	0.51	0.9			4.96	4.99	0.89	0.77	1.71	1.85
128	3.79	3.99	1.74	1.88	1.42	2.01	1.96	0.49	0.13			3.79	3.82	1.74	1.62	1.42	1.56
129	4.68	4.88	1.13	1.27	1.78	2.37	1.72	0.53	0.13			4.68	4.71	1.13	1.01	1.78	1.92
130	3.91	4.11	1.92	2.06	1.42	2.01	2.31	0.52	0.9			3.91	3.94	1.92	1.8	1.42	1.56
131	4.82	5.02	1.74	1.88	1.43	2.02	1.96	0.51	0.13			4.82	4.85	1.74	1.62	1.43	1.57
132	4.96	5.16	0.91	1.05	1.42	2.01	2.73	0.54	0.13			4.96	4.99	0.91	0.79	1.42	1.56
133	4.51	4.71	1.51	1.65	1.61	2.2	2.69	0.49	0.13			4.51	4.54	1.51	1.39	1.61	1.75
134	3.88	4.08	1.74	1.88	1.42	2.01	1.96	0.51	0.13			3.88	3.91	1.74	1.62	1.42	1.56
135	4.36	4.56	1.62	1.76	1.71	2.3	2.31	0.45	0.9			4.36	4.39	1.62	1.5	1.71	1.85
136	4.96	5.16	1.92	2.06	1.42	2.01	2.64	0.44	0.13			4.96	4.99	1.92	1.8	1.42	1.56
137	4.51	4.71	1.74	1.88	1.78	2.37	1.96	0.49	0.13			4.51	4.54	1.74	1.62	1.78	1.92
138	3.88	4.08	1.36	1.5	1.42	2.01	1.72	0.51	0.9			3.88	3.91	1.36	1.24	1.42	1.56
139	4.96	5.16	0.99	1.13	1.78	2.37	2.73	0.53	0.13			4.96	4.99	0.99	0.87	1.78	1.92
140	4.96	5.16	1.74	1.88	1.42	2.01	1.96	0.54	0.13			4.96	4.99	1.74	1.62	1.42	1.56
141	4.51	4.71	0.91	1.05	1.92	2.51	1.72	0.49	0.9			4.51	4.54	0.91	0.79	1.92	2.06
142	3.91	4.11	1.92	2.06	1.71	2.3	2.31	0.51	0.13			3.91	3.94	1.92	1.8	1.71	1.85
143	4.96	5.16	1.74	1.88	1.43	2.02	1.96	0.45	0.13			4.96	4.99	1.74	1.62	1.43	1.57
144	4.82	5.02	0.79	0.93	1.42	2.01	1.72	0.47	0.13			4.82	4.85	0.79	0.67	1.42	1.56
145	4.51	4.71	1.62	1.76	1.61	2.2	2.69	0.49	0.13			4.51	4.54	1.62	1.5	1.61	1.75
146	3.96	4.16	1.74	1.88	1.78	2.37	1.96	0.54	0.13			3.96	3.99	1.74	1.62	1.78	1.92
147	4.68	4.88	1.51	1.65	1.71	2.3	2.61	0.53	0.13			4.68	4.71	1.51	1.39	1.71	1.85
148	3.91	4.11	0.89	1.03	1.42	2.01	1.72	0.51	0.9			3.91	3.94	0.89	0.77	1.42	1.56
149	3.88	4.08	1.74	1.88	1.76	2.35	1.96	0.49	0.13			3.88	3.91	1.74	1.62	1.76	1.9
150	3.79	3.99	1.92	2.06	1.43	2.02	1.72	0.45	0.13			3.79	3.82	1.92	1.8	1.43	1.57
151	4.82	5.02	1.13	1.27	1.78	2.37	2.31	0.54	0.13			4.82	4.85	1.13	1.01	1.78	1.92
152	4.36	4.56	1.74	1.88	1.42	2.01	1.96	0.51	0.13			4.36	4.39	1.74	1.62	1.42	1.56
153	3.91	4.11	0.79	0.93	1.61	2.2	1.72	0.49	0.9			3.91	3.94	0.79	0.67	1.61	1.75
154	4.96	5.16	0.91	1.05	1.59	2.18	2.43	0.56	0.13			4.96	4.99	0.91	0.79	1.59	1.73
155	4.17	4.37	1.74	1.88	1.43	2.02	1.96	0.44	0.13			4.17	4.2	1.74	1.62	1.43	1.57
156	4.96	5.16	1.36	1.5	1.42	2.01	1.72	0.51	0.9			4.96	4.99	1.36	1.24	1.42	1.56
157	4.68	4.88	1.92	2.06	1.47	2.06	2.69	0.54	0.13			4.68	4.71	1.92	1.8	1.47	1.61
158	4.51	4.71	1.74	1.88	1.71	2.3	1.96	0.49	0.13			4.51	4.54	1.74	1.62	1.71	1.85
159	3.91	4.11	0.99	1.13	1.92	2.51	1.72	0.45	0.9			3.91	3.94	0.99	0.87	1.92	2.06
160	4.82	5.02	1.51	1.65	1.42	2.01	2.31	0.49	0.13			4.82	4.85	1.51	1.39	1.42	1.56
161	3.79	3.99	0.79	0.93	1.61	2.2	1.96	0.53	0.13			3.79	3.82	0.79	0.67	1.61	1.75
162	3.88	4.08	1.13	1.27	1.71	2.3	1.72	0.51	0.13			3.88	3.91	1.13	1.01	1.71	1.85
163	4.96	5.16	1.92	2.06	1.47	2.06	2.64	0.54	0.13			4.96	4.99	1.92	1.8	1.47	1.61
164	4.17	4.37	1.74	1.88	1.71	2.3	1.96	0.49	0.13			4.17	4.2	1.74	1.62	1.71	1.85
165	4.96	5.16	0.91	1.05	1.78	2.37	1.72	0.51	0.13			4.96	4.99	0.91	0.79	1.78	1.92
166	4.36	4.56	1.64	1.78	1.59	2.18	2.64	0.53	0.9			4.36	4.39	1.64	1.52	1.59	1.73
167	4.68	4.88	1.36	1.5	1.76	2.35	1.96	0.45	0.13			4.68	4.71	1.36	1.24	1.76	1.9
168	4.96	5.16	0.79	0.93	1.61	2.2	1.72	0.49	0.13			4.96	4.99	0.79	0.67	1.61	1.75
169	3.88	4.08	1.92	2.06	1.71	2.3	2.31	0.51	0.9			3.88	3.91	1.92	1.8	1.71	1.85
170	3.79	3.99	1.74	1.88	1.78	2.37	1.96	0.52	0.13			3.79	3.82	1.74	1.62	1.78	1.92
171	3.88	4.08	1.51	1.65	1.92	2.51	1.72	0.51	0.13			3.88	3.91	1.51	1.39	1.92	2.06
172	4.96	5.16	0.89	1.03	1.42	2.01	2.69	0.54	0.13			4.96	4.99	0.89	0.77	1.42	1.56
173	4.51	4.71	0.91	1.05	1.71	2.3	1.96	0.49	0.9			4.51	4.54	0.91	0.79	1.71	1.85
174	4.96	5.16	1.92	2.06	1.66	2.25	1.72	0.51	0.13			4.96	4.99	1.92	1.8	1.66	1.8

175	4.49	4.69	0.79	0.93	1.47	2.06	2.31	0.47	0.13			4.49	4.52	0.79	0.67	1.47	1.61
176	4.82	5.02	1.74	1.88	1.42	2.01	1.96	0.54	0.9			4.82	4.85	1.74	1.62	1.42	1.56
177	4.51	4.71	1.62	1.76	1.61	2.2	1.72	0.51	0.13			4.51	4.54	1.62	1.5	1.61	1.75
178	4.36	4.56	1.13	1.27	1.43	2.02	2.61	0.45	0.13			4.36	4.39	1.13	1.01	1.43	1.57
179	3.88	4.08	1.13	1.27	1.71	2.3	1.96	0.49	0.9			3.88	3.91	1.13	1.01	1.71	1.85
180	4.96	5.16	1.92	2.06	1.42	2.01	2.76	0.51	0.13			4.96	4.99	1.92	1.8	1.42	1.56
181	4.51	4.71	1.51	1.65	1.92	2.51	1.72	0.54	0.13			4.51	4.54	1.51	1.39	1.92	2.06
182	3.88	4.08	1.74	1.88	1.78	2.37	1.96	0.53	0.9			3.88	3.91	1.74	1.62	1.78	1.92
183	3.79	3.99	0.79	0.93	1.59	2.18	2.69	0.51	0.13			3.79	3.82	0.79	0.67	1.59	1.73
184	4.82	5.02	0.91	1.05	1.71	2.3	2.31	0.49	0.13			4.82	4.85	0.91	0.79	1.71	1.85
185	3.96	4.16	1.62	1.76	1.76	2.35	1.96	0.44	0.13			3.96	3.99	1.62	1.5	1.76	1.9
186	4.96	5.16	1.92	2.06	1.78	2.37	1.72	0.51	0.9			4.96	4.99	1.92	1.8	1.78	1.92
187	4.36	4.56	1.36	1.5	1.43	2.02	2.76	0.54	0.13			4.36	4.39	1.36	1.24	1.43	1.57
188	3.88	4.08	1.74	1.88	1.43	2.02	1.96	0.49	0.13			3.88	3.91	1.74	1.62	1.43	1.57
189	3.91	4.11	0.91	1.05	1.61	2.2	1.72	0.51	0.9			3.91	3.94	0.91	0.79	1.61	1.75
190	4.17	4.37	0.79	0.93	1.71	2.3	2.61	0.45	0.13			4.17	4.2	0.79	0.67	1.71	1.85
191	4.82	5.02	0.99	1.13	1.43	2.02	1.96	0.56	0.13			4.82	4.85	0.99	0.87	1.43	1.57
192	4.96	5.16	1.92	2.06	1.43	2.02	2.31	0.51	0.13			4.96	4.99	1.92	1.8	1.43	1.57
193	3.88	4.08	1.51	1.65	1.66	2.25	1.72	0.49	0.9			3.88	3.91	1.51	1.39	1.66	1.8
194	3.88	4.08	1.74	1.88	1.78	2.37	1.96	0.47	0.13			3.88	3.91	1.74	1.62	1.78	1.92
195	4.96	5.16	1.62	1.76	1.42	2.01	2.69	0.51	0.13			4.96	4.99	1.62	1.5	1.42	1.56
196	4.36	4.56	1.36	1.5	1.61	2.2	2.64	0.45	0.13			4.36	4.39	1.36	1.24	1.61	1.75
197	4.51	4.71	0.79	0.93	1.71	2.3	1.96	0.54	0.9			4.51	4.54	0.79	0.67	1.71	1.85
198	4.96	5.16	1.74	1.88	1.92	2.51	1.72	0.51	0.9			4.96	4.99	1.74	1.62	1.92	2.06
199	4.82	5.02	1.92	2.06	1.42	2.01	2.31	0.49	0.13			4.82	4.85	1.92	1.8	1.42	1.56
200	3.79	3.99	1.74	1.88	1.66	2.25	1.96	0.44	0.13			3.79	3.82	1.74	1.62	1.66	1.8
201	4.51	4.71	0.91	1.05	1.71	2.3	1.72	0.51	0.13			4.51	4.54	0.91	0.79	1.71	1.85
202	3.96	4.16	1.62	1.76	1.59	2.18	2.43	0.54	0.13			3.96	3.99	1.62	1.5	1.59	1.73
203	3.88	4.08	1.74	1.88	1.42	2.01	1.96	0.49	0.13			3.88	3.91	1.74	1.62	1.42	1.56
204	4.96	5.16	1.51	1.65	1.92	2.51	2.69	0.51	0.13			4.96	4.99	1.51	1.39	1.92	2.06
205	4.51	4.71	0.79	0.93	1.61	2.2	1.72	0.53	0.13			4.51	4.54	0.79	0.67	1.61	1.75
206	3.91	4.11	1.92	2.06	1.47	2.06	1.96	0.45	0.9			3.91	3.94	1.92	1.8	1.47	1.61
207	4.68	4.88	1.62	1.76	1.43	2.02	2.61	0.51	0.13			4.68	4.71	1.62	1.5	1.43	1.57
208	4.82	5.02	1.74	1.88	1.42	2.01	2.76	0.49	0.13			4.82	4.85	1.74	1.62	1.42	1.56
209	4.36	4.56	1.13	1.27	1.71	2.3	1.96	0.54	0.9			4.36	4.39	1.13	1.01	1.71	1.85
210	4.36	4.56	0.91	1.05	1.78	2.37	1.72	0.51	0.13			4.36	4.39	0.91	0.79	1.78	1.92
211	4.96	5.16	0.79	0.93	1.43	2.02	1.72	0.52	0.13			4.96	4.99	0.79	0.67	1.43	1.57
212	4.36	4.56	1.92	2.06	1.43	2.02	1.96	0.49	0.9			4.36	4.39	1.92	1.8	1.43	1.57
213	3.79	3.99	1.74	1.88	1.42	2.01	2.69	0.51	0.13			3.79	3.82	1.74	1.62	1.42	1.56
214	4.82	5.02	1.36	1.5	1.61	2.2	2.31	0.47	0.13			4.82	4.85	1.36	1.24	1.61	1.75
215	3.88	4.08	1.51	1.65	1.76	2.35	1.96	0.54	0.13			3.88	3.91	1.51	1.39	1.76	1.9
216	4.96	5.16	1.62	1.76	1.71	2.3	2.64	0.51	0.9			4.96	4.99	1.62	1.5	1.71	1.85
217	4.68	4.88	0.79	0.93	1.42	2.01	1.72	0.49	0.13			4.68	4.71	0.79	0.67	1.42	1.56
218	3.88	4.08	1.74	1.88	1.47	2.06	1.96	0.45	0.13			3.88	3.91	1.74	1.62	1.47	1.61
219	4.96	5.16	1.92	2.06	1.92	2.51	2.31	0.51	0.9			4.96	4.99	1.92	1.8	1.92	2.06
220	3.91	4.11	0.91	1.05	1.78	2.37	2.61	0.53	0.13			3.91	3.94	0.91	0.79	1.78	1.92
221	4.51	4.71	0.91	1.05	1.42	2.01	1.96	0.49	0.13			4.51	4.54	0.91	0.79	1.42	1.56
222	4.82	5.02	0.89	1.03	1.61	2.2	1.72	0.51	0.9			4.82	4.85	0.89	0.77	1.61	1.75
223	4.96	5.16	1.74	1.88	1.59	2.18	2.31	0.54	0.13			4.96	4.99	1.74	1.62	1.59	1.73
224	3.79	3.99	0.79	0.93	1.71	2.3	1.72	0.44	0.13			3.79	3.82	0.79	0.67	1.71	1.85
225	4.51	4.71	1.92	2.06	1.42	2.01	2.31	0.51	0.13			4.51	4.54	1.92	1.8	1.42	1.56
226	4.49	4.69	1.51	1.65	1.66	2.25	1.72	0.49	0.13			4.49	4.52	1.51	1.39	1.66	1.8
227	3.91	4.11	1.36	1.5	1.78	2.37	1.96	0.45	0.13			3.91	3.94	1.36	1.24	1.78	1.92
228	4.36	4.56	1.74	1.88	1.92	2.51	1.72	0.51	0.9			4.36	4.39	1.74	1.62	1.92	2.06
229	4.51	4.71	1.62	1.76	1.61	2.2	2.31	0.54	0.13			4.51	4.54	1.62	1.5	1.61	1.75
230	3.79	3.99	0.79	0.93	1.76	2.35	1.96	0.49	0.13			3.79	3.82	0.79	0.67	1.76	1.9
231	4.82	5.02	1.92	2.06	1.71	2.3	1.96	0.51	0.9			4.82	4.85	1.92	1.8	1.71	1.85
232	3.88	4.08	0.91	1.05	1.59	2.18	2.69	0.53	0.13			3.88	3.91	0.91	0.79	1.59	1.73
233	4.51	4.71	1.74	1.88	1.76	2.35	1.72	0.52	0.13			4.51	4.54	1.74	1.62	1.76	1.9
234	3.91	4.11	1.36	1.5	1.42	2.01	1.96	0.51	0.13			3.91	3.94	1.36	1.24	1.42	1.56
235	4.96	5.16	1.51	1.65	1.59	2.18	2.73	0.49	0.13			4.96	4.99	1.51	1.39	1.59	1.73
236	3.96	4.16	0.79	0.93	1.61	2.2	1.72	0.54	0.13			3.96	3.99	0.79	0.67	1.61	1.75
237	4.51	4.71	1.92	2.06	1.76	2.35	1.96	0.51	0.13			4.51	4.54	1.92	1.8	1.76	1.9

238	4.17	4.37	1.74	1.88	1.42	2.01	2.69	0.45	0.13			4.17	4.2	1.74	1.62	1.42	1.56
239	4.82	5.02	1.13	1.27	1.71	2.3	2.31	0.44	0.13			4.82	4.85	1.13	1.01	1.71	1.85
240	3.91	4.11	1.62	1.76	1.78	2.37	1.96	0.51	0.11			3.91	3.94	1.62	1.5	1.78	1.92
241	4.96	5.16	1.36	1.5	1.43	2.02	1.72	0.49	0.13			4.96	4.99	1.36	1.24	1.43	1.57
242	4.51	4.71	0.79	0.93	1.92	2.51	2.43	0.54	0.9			4.51	4.54	0.79	0.67	1.92	2.06
243	3.88	4.08	1.74	1.88	1.61	2.2	1.96	0.51	0.13			3.88	3.91	1.74	1.62	1.61	1.75
244	4.36	4.56	1.92	2.06	1.76	2.35	2.61	0.53	0.13			4.36	4.39	1.92	1.8	1.76	1.9
245	4.96	5.16	0.91	1.05	1.71	2.3	1.72	0.49	0.9			4.96	4.99	0.91	0.79	1.71	1.85
246	3.79	3.99	1.51	1.65	1.47	2.06	1.96	0.45	0.11			3.79	3.82	1.51	1.39	1.47	1.61
247	4.82	5.02	1.13	1.27	1.59	2.18	2.31	0.54	0.13			4.82	4.85	1.13	1.01	1.59	1.73
248	4.68	4.88	1.74	1.88	1.76	2.35	2.69	0.49	0.13			4.68	4.71	1.74	1.62	1.76	1.9
249	4.96	5.16	0.79	0.93	1.61	2.2	1.96	0.51	0.9			4.96	4.99	0.79	0.67	1.61	1.75
250	3.96	4.16	1.92	2.06	1.42	2.01	1.72	0.44	0.13			3.96	3.99	1.92	1.8	1.42	1.56
251	4.82	5.02	1.62	1.76	1.78	2.37	2.36	0.47	0.13			4.82	4.85	1.62	1.5	1.78	1.92
252	3.88	4.08	1.64	1.78	1.71	2.3	1.96	0.49	0.9			3.88	3.91	1.64	1.52	1.71	1.85
253	3.91	4.11	1.74	1.88	1.76	2.35	2.31	0.54	0.13			3.91	3.94	1.74	1.62	1.76	1.9
254	4.51	4.71	1.92	2.06	1.42	2.01	1.72	0.45	0.13			4.51	4.54	1.92	1.8	1.42	1.56
255	4.82	5.02	0.79	0.93	1.43	2.02	1.96	0.49	0.13			4.82	4.85	0.79	0.67	1.43	1.57
256	3.79	3.99	0.89	1.03	1.92	2.51	2.61	0.51	0.13			3.79	3.82	0.89	0.77	1.92	2.06
257	4.82	5.02	0.91	1.05	1.61	2.2	2.31	0.53	0.9			4.82	4.85	0.91	0.79	1.61	1.75
258	4.96	5.16	1.74	1.88	1.42	2.01	1.96	0.54	0.13			4.96	4.99	1.74	1.62	1.42	1.56
259	3.91	4.11	1.92	2.06	1.47	2.06	1.72	0.51	0.13			3.91	3.94	1.92	1.8	1.47	1.61
260	4.51	4.71	1.51	1.65	1.71	2.3	2.69	0.49	0.9			4.51	4.54	1.51	1.39	1.71	1.85
261	4.96	5.16	0.79	0.93	1.92	2.51	1.72	0.44	0.13			4.96	4.99	0.79	0.67	1.92	2.06
262	3.96	4.16	1.62	1.76	1.42	2.01	2.61	0.51	0.13			3.96	3.99	1.62	1.5	1.42	1.56
263	4.68	4.88	1.74	1.88	1.43	2.02	2.31	0.54	0.13			4.68	4.71	1.74	1.62	1.43	1.57
264	4.82	5.02	1.92	2.06	1.78	2.37	1.96	0.49	0.9			4.82	4.85	1.92	1.8	1.78	1.92
265	3.91	4.11	1.62	1.76	1.61	2.2	1.72	0.45	0.13			3.91	3.94	1.62	1.5	1.61	1.75
266	4.36	4.56	0.89	1.03	1.59	2.18	2.64	0.51	0.13			4.36	4.39	0.89	0.77	1.59	1.73
267	3.88	4.08	0.79	0.93	1.42	2.01	2.69	0.45	0.9			3.88	3.91	0.79	0.67	1.42	1.56
268	4.51	4.71	1.74	1.88	1.71	2.3	1.72	0.49	0.13			4.51	4.54	1.74	1.62	1.71	1.85
269	4.36	4.56	1.92	2.06	1.43	2.02	2.31	0.54	0.13			4.36	4.39	1.92	1.8	1.43	1.57
270	4.96	5.16	1.62	1.76	1.76	2.35	1.96	0.49	0.9			4.96	4.99	1.62	1.5	1.76	1.9
271	3.91	4.11	0.91	1.05	1.92	2.51	2.61	0.53	0.13			3.91	3.94	0.91	0.79	1.92	2.06
272	3.79	3.99	1.92	2.06	1.61	2.2	1.72	0.51	0.13			3.79	3.82	1.92	1.8	1.61	1.75
273	4.82	5.02	1.74	1.88	1.71	2.3	2.43	0.49	0.13			4.82	4.85	1.74	1.62	1.71	1.85
274	4.68	4.88	0.79	0.93	1.42	2.01	1.72	0.54	0.13			4.68	4.71	0.79	0.67	1.42	1.56
275	4.96	5.16	1.51	1.65	1.43	2.02	2.31	0.51	0.9			4.96	4.99	1.51	1.39	1.43	1.57
276	3.91	4.11	1.64	1.78	1.61	2.2	1.96	0.51	0.13			3.91	3.94	1.64	1.52	1.61	1.75
277	4.96	5.16	1.62	1.76	1.42	2.01	2.69	0.45	0.13			4.96	4.99	1.62	1.5	1.42	1.56
278	4.68	4.88	1.74	1.88	1.42	2.01	1.72	0.49	0.9			4.68	4.71	1.74	1.62	1.42	1.56
279	4.36	4.56	0.91	1.05	1.43	2.02	2.69	0.56	0.13			4.36	4.39	0.91	0.79	1.43	1.57
280	4.82	5.02	0.79	0.93	1.78	2.37	1.72	0.54	0.13			4.82	4.85	0.79	0.67	1.78	1.92
281	4.51	4.71	0.89	1.03	1.71	2.3	2.31	0.51	0.13			4.51	4.54	0.89	0.77	1.71	1.85
282	4.96	5.16	1.51	1.65	1.42	2.01	1.96	0.49	0.13			4.96	4.99	1.51	1.39	1.42	1.56
283	4.96	5.16	1.74	1.88	1.76	2.35	2.61	0.54	0.13			4.96	4.99	1.74	1.62	1.76	1.9
284	3.91	4.11	1.74	1.88	1.71	2.3	2.31	0.49	0.13			3.91	3.94	1.74	1.62	1.71	1.85
285	4.68	4.88	0.91	1.05	1.42	2.01	1.96	0.45	0.13			4.68	4.71	0.91	0.79	1.42	1.56
286	3.91	4.11	1.51	1.65	1.61	2.2	1.72	0.51	0.12			3.91	3.94	1.51	1.39	1.61	1.75
287	4.82	5.02	1.92	2.06	1.71	2.3	1.96	0.49	0.9			4.82	4.85	1.92	1.8	1.71	1.85
288	4.51	4.71	1.74	1.88	1.42	2.01	1.72	0.51	0.13			4.51	4.54	1.74	1.62	1.42	1.56
		4.629166667			1.608159722	2.198159722								1.3059375	1.60815972	1.748159	

TABLE 12: Data file.

Lipid index and metabolic index.

TC: total cholesterol; TG: triglycerides; HDL-C: high-density lipoprotein cholesterol; LDL-C: low-density lipoprotein cholesterol; WHIR: waist-to-height ratio

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Amna Akbar, Sarosh Khan Jadoon, Sabahat Tasneem, Waqar Mustafa, Zakir Ullah Khan, Shakir Ullah Khan, Musaira Tariq, Humayun Saleem

Acquisition, analysis, or interpretation of data: Amna Akbar, Sarosh Khan Jadoon, Sabahat Tasneem,

Waqar Mustafa, Zakir Ullah Khan, Shakir Ullah Khan, Musaira Tariq, Humayun Saleem

Drafting of the manuscript: Amna Akbar, Sarosh Khan Jadoon, Sabahat Tasneem, Waqar Mustafa, Zakir Ullah Khan, Shakir Ullah Khan, Musaira Tariq, Humayun Saleem

Critical review of the manuscript for important intellectual content: Amna Akbar, Sarosh Khan Jadoon, Sabahat Tasneem, Waqar Mustafa, Zakir Ullah Khan, Shakir Ullah Khan, Musaira Tariq, Humayun Saleem

Supervision: Sabahat Tasneem, Waqar Mustafa, Humayun Saleem

Disclosures

Human subjects: Consent was obtained or waived by all participants in this study. Abbas Institute of Medical Science issued approval AIMS/4608/2023. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

References

- Lopes Perdigo J, Lewey J, Hirschberg A, Koelper N, Srinivas SK, Elovitz MA, Levine LD: Furosemide for accelerated recovery of blood pressure postpartum in women with a hypertensive disorder of pregnancy: a randomized controlled trial. *Hypertension*. 2021, 77:1517-24. [10.1161/HYPERTENSIONAHA.120.16133](https://doi.org/10.1161/HYPERTENSIONAHA.120.16133)
- Chen H, Qian N, Yan L, Jiang H: Role of serum vitamin A and E in pregnancy. *Exp Ther Med*. 2018, 16:5185-9. [10.3892/etm.2018.6830](https://doi.org/10.3892/etm.2018.6830)
- Van Doorn R, Mukhtarova N, Flyke IP, Lasarev M, Kim K, Hennekens CH, Hoppe KK: Dose of aspirin to prevent preterm preeclampsia in women with moderate or high-risk factors: a systematic review and meta-analysis. *PLoS One*. 2021, 16:e0247782. [10.1371/journal.pone.0247782](https://doi.org/10.1371/journal.pone.0247782)
- Miller EC, Gatollari HJ, Too G, et al.: Risk factors for pregnancy-associated stroke in women with preeclampsia. *Stroke*. 2017, 48:1752-9. [10.1161/STROKEAHA.117.017374](https://doi.org/10.1161/STROKEAHA.117.017374)
- Magee LA, Sharma S, Nathan HL, et al.: The incidence of pregnancy hypertension in India, Pakistan, Mozambique, and Nigeria: a prospective population-level analysis. *PLoS Med*. 2019, 16:e1002783. [10.1371/journal.pmed.1002783](https://doi.org/10.1371/journal.pmed.1002783)
- Soomro S, Kumar R, Lakhani H, Shaikat F: Risk factors for pre-eclampsia and eclampsia disorders in tertiary care center in Sukkur, Pakistan. *Cureus*. 2019, 11:e6115. [10.7759/cureus.6115](https://doi.org/10.7759/cureus.6115)
- Chen W, Guo Y, Yao X, Zhao D: Correlation of blood lipid and serum inflammatory factor levels with hypertensive disorder complicating pregnancy. *Front Surg*. 2022, 9:917458. [10.3389/fsurg.2022.917458](https://doi.org/10.3389/fsurg.2022.917458)
- Wakabayashi I, Daimon T: The "cardiometabolic index" as a new marker determined by adiposity and blood lipids for discrimination of diabetes mellitus. *Clin Chim Acta*. 2015, 438:274-8. [10.1016/j.cca.2014.08.042](https://doi.org/10.1016/j.cca.2014.08.042)
- Wakabayashi I, Sotoda Y, Hirooka S, Orita H: Association between cardiometabolic index and atherosclerotic progression in patients with peripheral arterial disease. *Clin Chim Acta*. 2015, 446:231-6. [10.1016/j.cca.2015.04.020](https://doi.org/10.1016/j.cca.2015.04.020)
- Wang H, Sun Y, Li Z, et al.: Gender-specific contribution of cardiometabolic index and lipid accumulation product to left ventricular geometry change in general population of rural China. *BMC Cardiovasc Disord*. 2018, 18:62. [10.1186/s12872-018-0798-0](https://doi.org/10.1186/s12872-018-0798-0)
- Wang H, Chen Y, Guo X, Chang Y, Sun Y: Usefulness of cardiometabolic index for the estimation of ischemic stroke risk among general population in rural China. *Postgrad Med*. 2017, 129:834-41. [10.1080/00325481.2017.1375714](https://doi.org/10.1080/00325481.2017.1375714)
- Shi WR, Wang HY, Chen S, Guo XF, Li Z, Sun YX: Estimate of prevalent diabetes from cardiometabolic index in general Chinese population: a community-based study. *Lipids Health Dis*. 2018, 17:236. [10.1186/s12944-018-0886-2](https://doi.org/10.1186/s12944-018-0886-2)
- Wang H, Chen Y, Sun G, Jia P, Qian H, Sun Y: Validity of cardiometabolic index, lipid accumulation product, and body adiposity index in predicting the risk of hypertension in Chinese population. *Postgrad Med*. 2018, 130:325-33. [10.1080/00325481.2018.1444901](https://doi.org/10.1080/00325481.2018.1444901)
- Webster K, Fishburn S, Maresh M, Findlay SC, Chappell LC: Diagnosis and management of hypertension in pregnancy: summary of updated NICE guidance. *BMJ*. 2019, 366:j5119. [10.1136/bmj.j5119](https://doi.org/10.1136/bmj.j5119)
- Yu S, Zhang Y: The association between isolated systolic or diastolic hypertension and cardiovascular risk. *J Hypertens*. 2021, 39:1552-4. [10.1097/HJH.0000000000002857](https://doi.org/10.1097/HJH.0000000000002857)
- Hendren NS, de Lemos JA, Ayers C, et al.: Association of body mass index and age with morbidity and mortality in patients hospitalized with COVID-19: results from the American Heart Association COVID-19 Cardiovascular Disease Registry. *Circulation*. 2021, 145:135-44. [10.1161/CIRCULATIONAHA.120.051956](https://doi.org/10.1161/CIRCULATIONAHA.120.051956)
- Gestational Hypertension and Preeclampsia: ACOG Practice Bulletin, Number 222. *Obstet Gynecol*. 2020, 135:e237-60. [10.1097/AOG.0000000000003891](https://doi.org/10.1097/AOG.0000000000003891)
- Han L, Liu X, Li H, et al.: Blood coagulation parameters and platelet indices: changes in normal and preeclamptic pregnancies and predictive values for preeclampsia. *PLoS One*. 2014, 9:e114488. [10.1371/journal.pone.0114488](https://doi.org/10.1371/journal.pone.0114488)
- Khedagi AM, Bello NA: Hypertensive disorders of pregnancy. *Cardiol Clin*. 2021, 39:77-90. [10.1016/j.ccl.2020.09.005](https://doi.org/10.1016/j.ccl.2020.09.005)
- Saki SA, Nessa A, Salma MU, Begum A: Relationship of HDL-C and triglyceride with hypertension in adult men. *Mymensingh Med J*. 2019, 28:298-301.
- Han V, Lajoie G, Ballard J, et al.: Early onset preeclampsia is characterized by altered placental lipid metabolism and a premature increase in circulating FABP4. *Nat Prec*. 2010, 10:1058. [10.1038/npre.2010.4885.1](https://doi.org/10.1038/npre.2010.4885.1)
- Cendrowska-Pinkosz M, Dworziński W, Krauze M, Burdan F: [Changes of carbohydrate and lipid metabolism in women during pregnancy taking caffeine]. *Pol Merkur Lekarski*. 2017, 42:38-41.
- Johnson AC, Cipolla MJ: Altered hippocampal arteriole structure and function in a rat model of preeclampsia: potential role in impaired seizure-induced hyperemia. *J Cereb Blood Flow Metab*. 2017, 37:2857-69. [10.1177/0271678X16676287](https://doi.org/10.1177/0271678X16676287)
- Jung E, Romero R, Yeo L, et al.: The etiology of preeclampsia. *Am J Obstet Gynecol*. 2022, 226:S844-66. [10.1016/j.ajog.2021.11.1356](https://doi.org/10.1016/j.ajog.2021.11.1356)
- Yang Y, Le Ray I, Zhu J, Zhang J, Hua J, Reilly M: Preeclampsia prevalence, risk factors, and pregnancy outcomes in Sweden and China. *JAMA Netw Open*. 2021, 4:e218401. [10.1001/jamanetworkopen.2021.8401](https://doi.org/10.1001/jamanetworkopen.2021.8401)
- Rogers BN, Stephens JM, Sones JL: Linking inflammatory adipose tissue to placental abnormalities in obese preeclamptic pregnancies. *Physiol Genomics*. 2022, 54:319-24. [10.1152/physiolgenomics.00041.2022](https://doi.org/10.1152/physiolgenomics.00041.2022)
- Alston MC, Redman LM, Sones JL: An overview of obesity, cholesterol, and systemic inflammation in preeclampsia. *Nutrients*. 2022, 14:2087. [10.3390/nu14102087](https://doi.org/10.3390/nu14102087)
- Poon LC, Shennan A, Hyett JA, et al.: The International Federation of Gynecology and Obstetrics (FIGO) initiative on pre-eclampsia: a pragmatic guide for first-trimester screening and prevention. *Int J Gynaecol Obstet*. 2019, 145 Suppl 1:1-33. [10.1002/figo.12802](https://doi.org/10.1002/figo.12802)