"Homocysteine (Hcy) and Asymmetric Dimethyl Arginine (ADMA) levels in early pregnancy and its association with the outcome of pregnancy- A descriptive observational study"

By

REG NO. BJ0116002

Dissertation

Submitted to the
KLE Academy of Higher Education and Research,
Belagavi, Karnataka.

In partial fulfillment of the requirements for the award of the degree of

MASTER OF SURGERY (M.S.)

In

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

J. N. MEDICAL COLLEGE, NEHRU NAGAR

BELAGAVI-590010

APRIL- 2019

KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH (KAHER), BELAGAVI, KARNATAKA

Endorsement by the HOD, Principal/Head of the Institution

This is to certify that the dissertation entitled **"Homocysteine (Hcy) and Asymmetric Dimethyl Arginine (ADMA) levels in early pregnancy and its association with the outcome of pregnancy- A descriptive observational study"** is a bonafide research work done by Reg. no **B J 0 1 1 6 0 0 2 .**

Dr. M.B Bellad$_{MD, FICOG}$
Professor & Head
Department of Obstetrics,
And Gynaecology
J.N. Medical College
Nehru Nagar,
Belagavi- 590010

Dr. (Mrs.) Niranjana. S. Mahantshetti $_{MD}$
Principal
J.N. Medical College
Nehru Nagar,
Belagavi- 590010

Date:
Place: Belagavi

Date:
Place: Belagavi

ABBREVIATIONS

Hcy	-	Homocysteine
ADMA	-	Asymmetric Dimethyl Arginine
SDMA	-	Symmetric Dimethyl Arginine
DDAH	-	Dimethylarginine Dimethyl Amino Hydrolase
HTN	-	Hypertension
PE	-	Preeclampsia
FGR	-	Fetal growth restriction
HELLP	-	Haemolysis, Elevated Liver enzymes, Low Platelets
FSB	-	Fresh Still Birth
MSB	-	Macerated Still Birth
µmol/l	-	micro moles/ litre
Veg	-	Vegetarian
Primi	-	Primigravida
Multi	-	Multigravida
BP	-	Blood Pressure
ACOG	-	American College of Obstetricians and Gynaecologists
MgSO4	-	Magnesium Sulphate
NO	-	Nitric Oxide
eNOS	-	endothelial Nitric Oxide Synthase
FA	-	Folic Acid
ICMR	-	Indian Council of Medical Research
SAM	-	S- Adenosyl Methionine
SAH	-	S-Adenosyl Homocysteine
MS	-	Methionine Synthase

CTRI	-	Clinical Trials Registry- India
EDTA	-	Ethylene Dimethyl Tetra Acetic acid
ELISA	-	Enzyme Linked Immuno Sorbent Assay
HRP	-	Horse Radish Peroxidase
OD	-	Optical Density
PAPP-A	–	Pregnancy Associated Plasma Protein-A
PlGF	-	Placental Growth Factor
sFLT-1	–	soluble Fms like Tyrosine Kinase-1
VEGF	-	Vascular Endothelial Growth Factor
sENG	-	soluble Endoglin
PTX 3	-	Pentraxin 3
CAD	-	Coronary Artery Disease
BMI	-	Body Mass Index
SGA	-	Small for Gestational Age
HSV	-	Herpes Simplex Virus

LIST OF CONTENTS

LIST OF TABLES

LIST OF GRAPHS

INTRODUCTION

Pregnancy is a precious event in a women's life and the entire family. Some pregnancies are complicated by hypertensive disorders of pregnancy, fetal growth restriction, abruption, stillbirth, miscarriage etc.

Hypertensive disorders in pregnancy constitute the major cause of maternal and perinatal morbidity and mortality. Fetal growth restriction (FGR) constitutes the major cause of perinatal morbidity and mortality.

As per Task Force of the American College of Obstetricians and Gynecologists (ACOG) (2013), hypertensive disorders of pregnancy are classified as

1. Gestational Hypertension (HTN)
2. Preeclampsia and eclampsia syndrome
3. Chronic hypertension of any etiology
4. Preeclampsia superimposed on chronic hypertension[1]

Gestational hypertension (transient hypertension) is defined as the systolic blood pressure ≥140 mm of Hg and/ or diastolic blood pressure ≥90 mm of Hg on at least 2 occasions 4hours apart (but not more than 7days apart) and without proteinuria after 20 weeks gestation in a previously normotensive women and the hypertension resolves by 12 weeks postpartum.

Preeclampsia (PE) is defined as hypertension plus

1. Proteinuria- i) ≥300 mg/ 24 hour or

   ii) Urine protein: creatinine ratio≥ 0.3 or

   iii) Dipstick 1+ (persistent)

   OR

2. Thrombocytopenia- Platelet count <1,00,000/µl
3. Renal insufficiency- Creatinine level >1.1mg/dl or doubling of baseline
4. Liver involvement- Serum transaminase levels twice the normal
5. Cerebral symptoms- Headache, visual disturbances
6. Pulmonary edema

Eclampsia is defined as pre-eclampsia complicated by generalized tonic-clonic convulsions and/ or coma.

Chronic hypertension is defined as blood pressure ≥140/90 mm of Hg before pregnancy or before 20 weeks gestation or both or if hypertension persists beyond 12 weeks postpartum.

Preeclampsia superimposed on chronic hypertension is defined as new-onset or worsening baseline hypertension accompanied by new-onset proteinuria or other features of pre-eclampsia as stated above.

Atypical preeclampsia includes cases with

- ✓ Minimal or no proteinuria, but with hypertension, or
- ✓ Proteinuria with no or marginally elevated blood pressure (BP), or

- ✓ Presentations before 20 weeks gestation or more than 48 hours postpartum, those resistant to Magnesium Sulphate (MgSO4) therapy, and hemolytic anemia, elevated liver enzymes, and low platelets (HELLP) syndrome and its variants.[2]

Fetal growth restriction (FGR) is defined as the fetal abdominal circumference or the estimated fetal birth weight $<10^{th}$ percentile for the period of gestation on ultrasound.[3]

Abortion is defined as the spontaneous loss of pregnancy before 20 weeks gestation or with fetus born weighs less than 500 grams.[4]

Abruption of placenta is defined as the premature separation of a normally situated placenta either partially or completely before the delivery of the fetus.[5]

Stillbirth is defined as the baby delivered with no signs of life and known to have died after the period of viability.[6]

Preterm delivery is defined as the delivery before 37 completed weeks.

7-15% of pregnancies are complicated by hypertensive disorders. Preeclampsia accounts for 71.2% of all hypertensive disorders of pregnancy.[7]The underlying pathology in hypertensive disorders is the endothelial dysfunction.

The metabolism of some of the serum biomarkers like Homocysteine (Hcy) and Asymmetric Dimethyl Arginine (ADMA) if deranged can lead to endothelial dysfunction by inhibiting an enzyme, endothelial Nitric Oxide Synthase (eNOS). Homocysteine is a sulphur containing aminoacid produced as a byproduct of methyl transfer reactions and can alter ADMA metabolism by inhibiting an enzyme-Dimethylarginine Dimethyl Amino Hydrolase (DDAH). ADMA is an endogenous competitive inhibitor of eNOS leading to increased superoxide and other reactive

oxygen species which further leads to decreased Nitric Oxide (NO).[8]

NO is synthesized by endothelial cells and is a potent vasodilator. In addition to regulating vascular tone, endothelium derived NO suppresses vascular smooth muscle proliferation, inhibit platelet adhesion and aggregation and interferes with leukocyte- endothelial cell interaction.[9]

Homocysteine

↓

Inhibits Dimethyl arginine Dimethyl Amino Hydrolase (DDAH)

↓

Decreases ADMA metabolism

↓

Increases ADMA levels

↓

Inhibits endothelial Nitric Oxide Synthase (eNOS)

↓

Decreases Nitric Oxide synthesis

↓

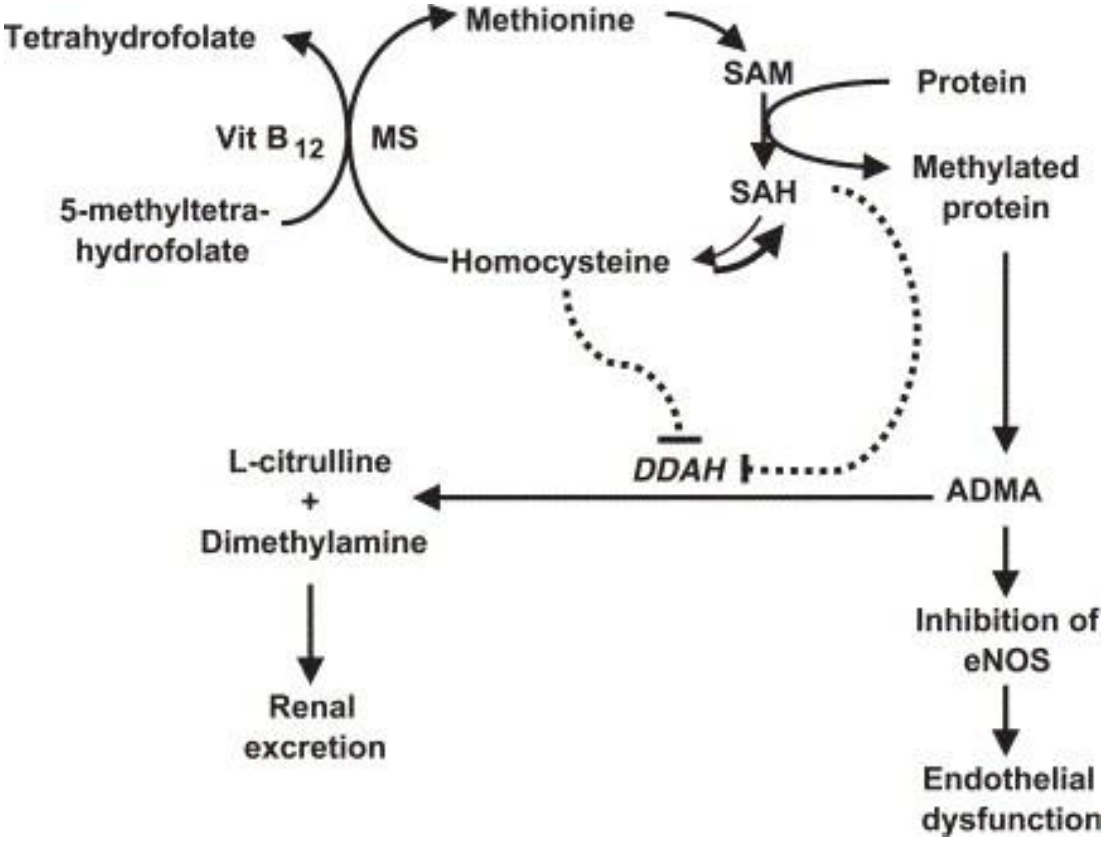
Endothelial dysfunction

The effects of endothelial dysfunction in the placental vasculature on mother are preeclampsia, abruptio placentae, miscarriage and that on the fetus includes Fetal Growth Restriction, stillbirths etc.

Homocysteine and ADMA levels are directly correlated with albumin levels. These are decreased as the pregnancy advances due to hemodilution and gradual

decrease in the albumin levels in pregnancy.

Vitamin B12 and folic acid are essential for the metabolism of homocysteine and ADMA. Homocysteine and ADMA levels are increased in Vegetarian (Veg) population due to deficiency of vitamin B12 and folic acid.[10] The following picture depicts the correlation of homocysteine and ADMA metabolism with each other and with Vitamin B12 and folic acid.



SAM - S- Adenosyl Methionine

SAH - S-Adenosyl Homocysteine

MS - Methionine Synthase

Indian Council of Medical Research (ICMR) recommends required dietary intake of 1.2 µg/day of vitamin B12 during pregnancy in India.[11]

During pregnancy, Homocysteine>10µmol/L and ADMA>0.77µmol/L are considered as high levels (abnormal).[10]

There are surveys which showed that non-vegetarians eat meat infrequently with less than 30% consuming it regularly. The reasons are mainly cultural and partially economical.[12] A true non-vegetarian is the one who consumes meat at least once a day. This region being a predominantly vegetarian population and due to lack of studies in this area, this study helps in correlating an association between the levels of homocysteine and asymmetric dimethyl arginine in early pregnancy with the outcome of pregnancy. The estimation of levels of these serum biomarkers can help in the prediction, timely management and the prevention of adverse outcomes.

OBJECTIVES

Primary objective-

To measure the levels of homocysteine and ADMA in early pregnancy (≤18 weeks gestation) in this region.

Secondary objective-

To find out any association of increased homocysteine and ADMA levels with adverse pregnancy outcomes.

REVIEW OF LITERATURE

Preeclampsia is a multisystem disorder of pregnancy with multifactorial etiology. Endothelial dysfunction is identified as the main underlying pathology. [13] Studies reported that there is an imbalance between oxidants (lipoproteins, free radicals) and antioxidants that leads to endothelial damage.[14, 15]

Occurrence of preeclampsia can be predicted by some serum biomarkers like nitric oxide, Homocysteine (Hcy), Asymmetric Dimethyl Arginine (ADMA), Pregnancy Associated Plasma Protein-A (PAPP-A), Placental Growth Factor (PlGF), soluble fms like tyrosine kinase-1 (sFLT-1), Vascular Endothelial Growth Factor (VEGF), soluble Endoglin (sENG).[16,17]

The incidence of hypertensive disorders in pregnancy and maternal mortality are 20 times higher in developing countries than in developed countries.[18]

61.5% of South Asian women are deficient in vitamin B12.[19]

Vitamin B12 deficiency is associated with neural tube defects, preterm birth, Fetal Growth Restriction (FGR), congenital heart defects, increased levels of homocysteine and asymmetric dimethylarginine.[20]

Levels of homocysteine and asymmetric dimethylarginine decreases as the pregnancy advances due to the effect of hemodilution, hormonal influence and nutritional deficiency.[21]

Homocysteine increases the levels of ADMA by inhibiting Dimethylarginine Dimethyl Amino Hydrolase (DDAH), an enzyme involved in its metabolism.[8]

Serial determination of homocysteine and asymmetric dimethylarginine levels till delivery showed increased levels of both Hcy and ADMA in the group who developed preeclampsia.[17]

The mean serum homocysteine and ADMA levels were significantly higher and the mean serum NO levels were significantly lower in cases with preeclampsia than the control group.[14, 22] The median plasma levels of L-arginine and L-homoarginine (which are substrates for NO synthesis) were significantly lower in the group who developed early PE (before 34 weeks gestation) compared to normotensive group and patients who developed late PE (at or after 34 weeks). The ratio of ADMA to L-arginine and ADMA to L-homoarginine were higher in the group who developed early PE. This study showed an association between altered NO metabolism and/ or its synthesis with early PE than with late PE.[23]

Higher levels of ADMA were associated with increased risk of hypertension, Coronary Artery Disease (CAD), stroke, obesity, Diabetes Mellitus (DM), kidney injury.[24] Pre-pregnancy overweight (Body Mass Index: BMI>25 kg/m^2), primigravida, high homocysteine (>7.2µM) and low L-arginine (<70µM) in early pregnancy (8 to 16 weeks gestation) were the risk factors for development of hypertensive disorders of pregnancy.[25]

Maternal serum homocysteine levels in early pregnancy were significantly higher in hypertensive group than in normal pregnancy.[25] G894T polymorphism of eNOS gene has been recently identified as the risk factor for hypertensive disorders in pregnancy in Asian population and thus ADMA might not be associated with the pathophysiology of hypertensive disorders in Asians.[26]

Vascular Endothelial Growth Factor (VEGF), nitrite and ADMA levels were increased in preeclamptic group compared to the control group.[27] A positive correlation between the ADMA concentration and the severity of preeclampsia was proved.[28]

The maternal plasma, umbilical vein and artery plasma were analyzed at caesarean section which showed increased maternal concentration of ADMA, Symmetric Dimethyl Arginine (SDMA) and L-arginine levels and increased fetal SDMA levels in preeclampsia group.[29]

Fasting samples were taken from pregnant women between 8 to 12 weeks gestation to estimate homocysteine levels. It was noticed that high levels were associated with pregnancy loss, hypertensive disorders of pregnancy and preterm birth in the previous and present pregnancies.[30]

Increased homocysteine and low folate concentrations were associated with low placental weight and low birth weight (birth weight less than 2.5kg) and increased risk of Small for Gestational Age (SGA) (birth weight less than 10^{th} percentile).[31]

Hyperhomocysteinemia increases the risk of recurrent miscarriage, recurrent pregnancy loss, placental abruption, fetal growth restriction and perinatal death.[4.32-35]

Serum ADMA levels were higher in cases with preeclampsia, fetal growth restriction and in cases with impaired placental function with normal outcome.[36]

Serum ADMA levels were inversely related to the birth weight in cases of growth restriction and preeclampsia.[36, 37]

Increased levels of ADMA and Pentraxin 3 (PTX 3) precedes the occurrence of preeclampsia.[38]

METHODOLOGY

Study design: A descriptive observational study

Study period: 19months including the period of follow up (1st January 2017 to 31st July 2018)

Source of data: Pregnant women attending the Department of Obstetrics and Gynaecology at teaching hospital attached to KLE Academy of Higher Education and Research (KAHER), Belagavi.

Sample size:

$n=4pq/d^2$

n- Sample size

p- Prevalence of increased homocysteine and ADMA levels in pregnancy=43%[10]

q= 100 – p =57%

d- Error =7%

Sample size=200

Sample size taken in the study- 282

Selection criteria:

Inclusion criteria:

1. Singleton pregnancy.
2. Gestational age: less than or equal to 18 weeks.
3. Willing to deliver at teaching hospital attached to KLE Academy of Higher Education and Research (KAHER), Belagavi.

Exclusion criteria

1. Known case of hypertension.
2. Known case of Diabetes mellitus.
3. Known case of renal/liver/cardiac disorders

Ethical clearance:

Prior to the commencement, the study was approved by the Ethical and Research Committee, Jawaharlal Nehru Medical College, Belagavi.

(Annexure 1 - Letter number MDC/DOME/80 dated 17/10/2016)

This study was registered prospectively at Clinical Trials Registry- India (CTRI) with registration no- CTRI/2017/02/007821

Informed consent:

All the participants fulfilling the selection criteria were explained about the purpose of the study and a written informed consent in their own vernacular language was obtained before enrolment.

Method of collection of data

All the pregnant women attending the Department of Obstetrics and Gynaecology at teaching hospital attached to KLE Academy of Higher Education & Research (KAHER) were screened. The women fulfilling the selection criteria were enrolled in the study after obtaining their informed consent. The baseline information including the details of residence and the obstetric details were collected.

3ml of venous blood was collected in Ethylene Diamine Tetra-acetic Acid (EDTA) vacutainer during routine antenatal investigations.

Blood Sample collected

↓

Sample processed for serum separation

↓

Serum was stored at -80◦C until further analysis.

The samples were analyzed by Enzyme Linked Immuno-Sorbent Assay (ELISA) method. ELISA kits were from Shanghai Korain Biotech Co.Ltd., purchased through Everon Life Sciences, New Delhi.

The ELISA kits were stored at -20◦C till analysis. The kits and samples were warmed naturally to room temperature 30minutes prior to the use.

Reagents and standards were prepared.

The blood sample was added to the wells pre-coated with the homocysteine and ADMA monoclonal antibodies respectively and was incubated at room temperature for 60 minutes. A biotin- conjugated anti-human antibody was added which binds to human homocysteine or ADMA respectively. After incubation, unbound biotin-conjugated anti-human antibody was washed away during a washing step. Then Streptavidin-Horse Radish Peroxidase (HRP) was added which binds to the biotin-conjugated anti-human antibody. After incubation, unbound Streptavidin-HRP was washed away during a washing step. Substrate solution was then added and incubated at room temperature for 10 minutes following which color develops in proportion to the amount of human homocysteine or ADMA respectively. The reaction was terminated by addition of acidic stop solution and absorbance was measured at 450 nm by using LISA plus microplate reader.

A standard curve was constructed using the average Optical Density (OD) for each standard on the vertical (Y) axis against concentration on the horizontal (X) axis and a curve was drawn fitting the points on the graph. The optical densities of all samples were plotted on graph and the levels of homocysteine and ADMA were measured.

All the women were followed up till delivery. The information about outcome was collected when the women were admitted in labor room at teaching hospital attached to KAHER for delivery. The information of women who delivered at other hospitals was collected by telephonic conversation.

Statistical analysis

The data obtained was coded and entered into Microsoft Excel Worksheet. The analysis was done using chi-square test, p value, multiple logistic regression analysis and t test. p value of <0.05 was taken as statistically significant.

RESULTS

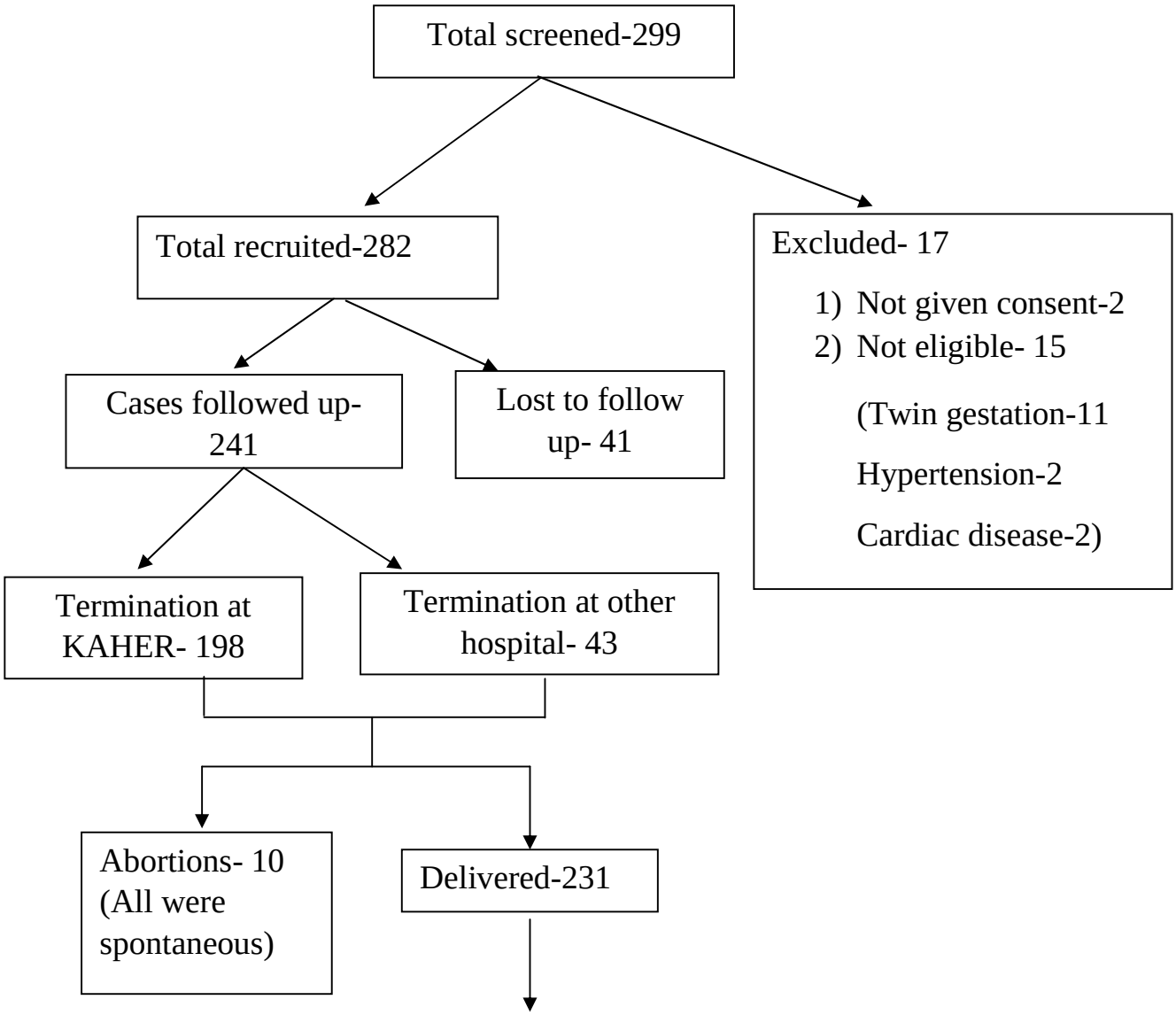
This study was conducted in the Department of Obstetrics and Gynaecology at the teaching hospital attached to KLE Academy of Higher Education and Research (KAHER), Belagavi from January 2017 to July 2018 including the period of follow up and analysis.

- Total 299 pregnant women were screened.
- 17 were not recruited: 2 women did not give consent and 15 were not eligible (11cases were twin gestation, 2 cases had pre-existing hypertension 2 cases had cardiac disease).
- Total 282 were enrolled in the study.

Out of 282 enrolled women, 41 were lost to follow up and 241 completed the study. Of the 241 women, 198 women had pregnancy termination at teaching hospital attached to KAHER and the information was collected at admission in labour room. Information regarding the rest of the 43 women who delivered at other hospitals was collected by telephonic communication.

The data obtained was coded and entered into the Microsoft Excel spreadsheet. The data was analyzed and the following results were obtained.

CONSORT DIAGRAM:



Outcome	Full term (197)	Preterm (34)	Total
Gestational HTN	16	1	17
PE	8	6	14
Eclampsia	0	2	2
FGR	31	7	38
Abruption	0	4	4
Stillbirth	0	3	3
Total			78

Table I: Levels of Homocysteine (Hcy) and Asymmetric Dimethyl Arginine (ADMA)

Homocysteine	ADMA	Total	Percentage
Normal	Normal	106	37.58
Abnormal	Abnormal	108	38.29
Abnormal	Normal	28	9.92
Normal	Abnormal	40	14.18

Out of the 282 samples recruited, incidence of

Increased levels of homocysteine- 136 (108+28) = 48.22%

Increased levels of ADMA- 148 (108+40) = 52.48%

Both homocysteine and ADMA were increased in 108 cases = 38.29%

Among the 41 cases lost to follow up,

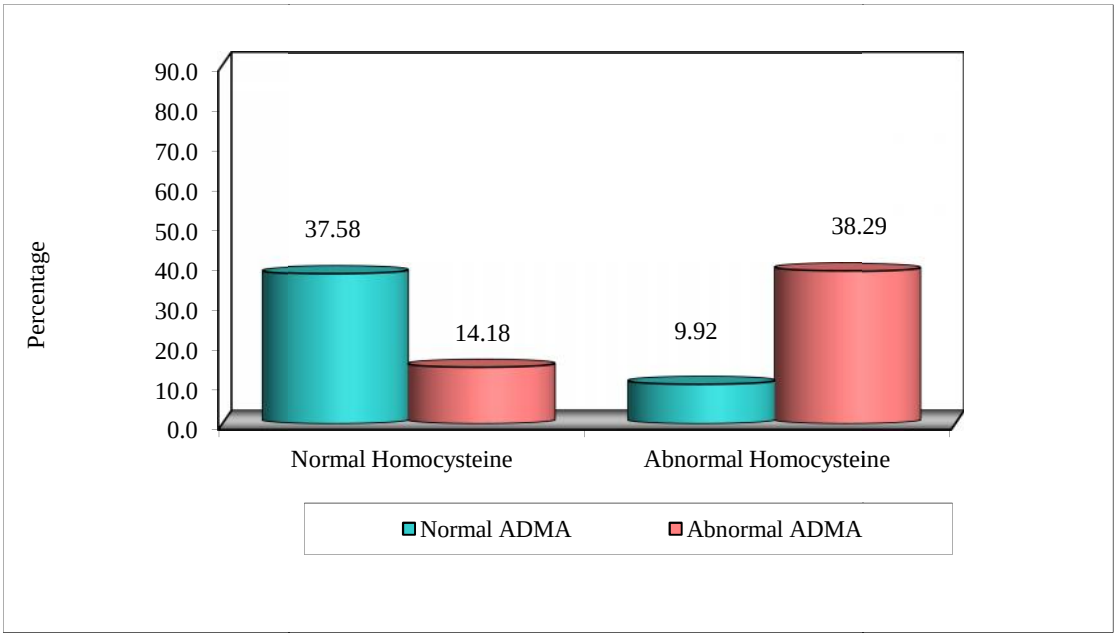
Both Hcy and ADMA were normal- 9

Both were abnormal- 17

Only Hcy was abnormal- 8

Only ADMA was abnormal- 7

Figure I: Levels of homocysteine and ADMA

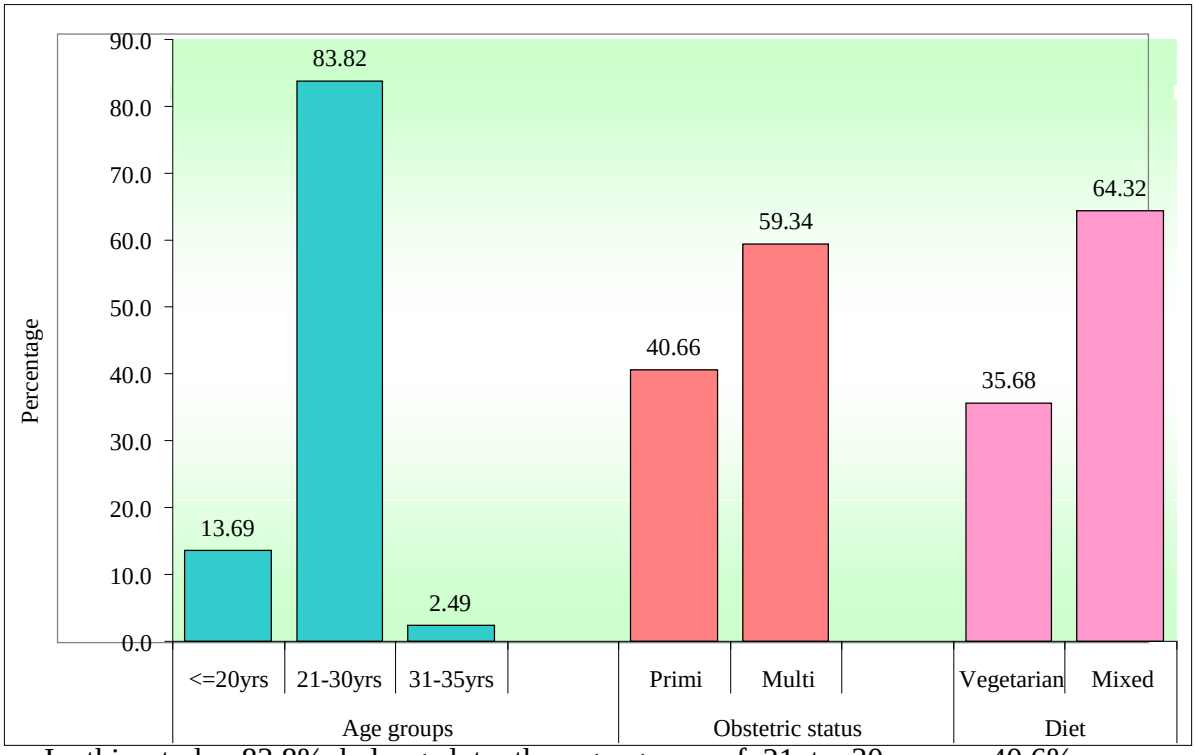


This study showed that the incidence of Hyperhomocysteinemia in early pregnancy was 48.22% and that of increased levels of ADMA was 52.48%.

Table II: Distribution of patients by age groups, Obstetric score and diet

Characteristics	No of patients	% of patients
Age groups		
<=20yrs	33	13.69
21-30yrs	202	83.82
31-35yrs	6	2.49
Total	241	100.00
Obstetric score		
Primigravida (Primi)	98	40.66
Multigravida (Multi)	143	59.34
Total	241	100.00
Diet		
Vegetarian	86	35.68
Mixed	155	64.32
Total	241	100.00

Figure II: Distribution of patients by age groups, Obstetric score and diet

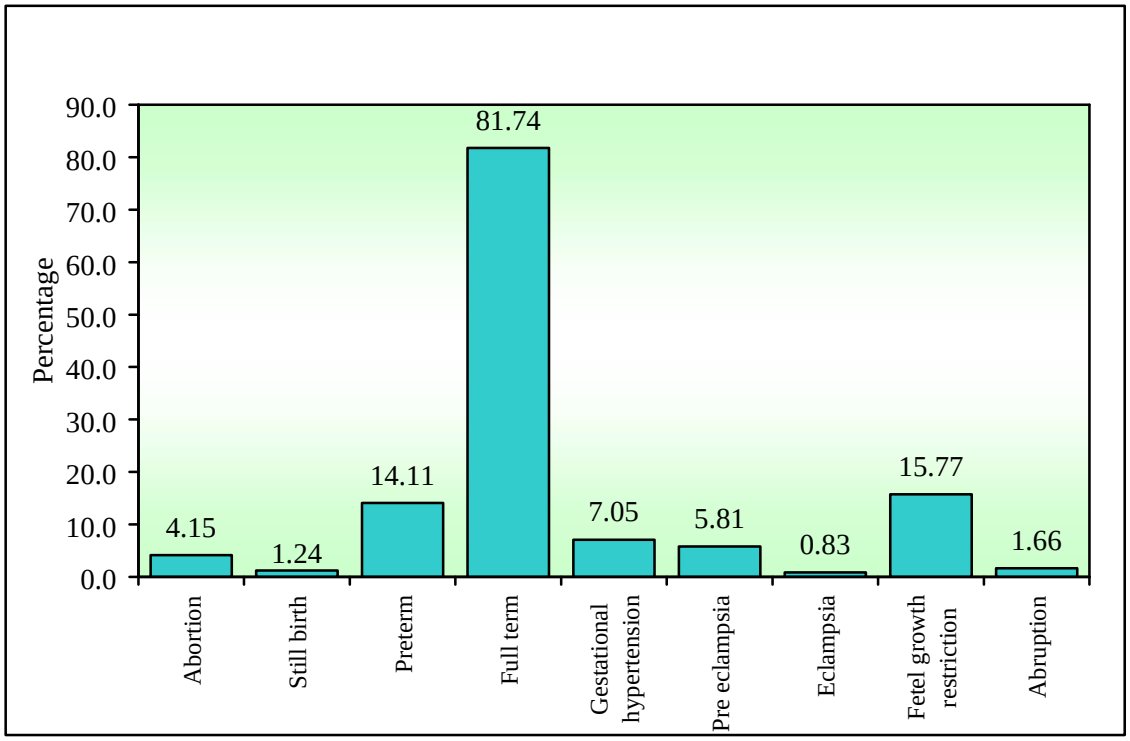


In this study, 83.8% belonged to the age group of 21 to 30 years. 40.6% were primigravidae and 59.3% were multigravidae. 35.6% were vegetarians and 64.3% consumed mixed diet.

Table III: Pregnancy outcomes

Serial number	Outcomes	No of patients	% of patients
1.	Full term	197	81.74
2.	Preterm	34	14.11
3.	Abortion	10	4.15
4.	Still birth	3	1.24
5.	Hypertensive disorders	33	13.69
i)	Gestational hypertension	17	7.05
ii)	Preeclampsia	14	5.81
iii)	Eclampsia	2	0.83
6.	Fetal growth restriction	38	15.77
7.	Abruption	4	1.66

Figure III: Pregnancy outcomes.



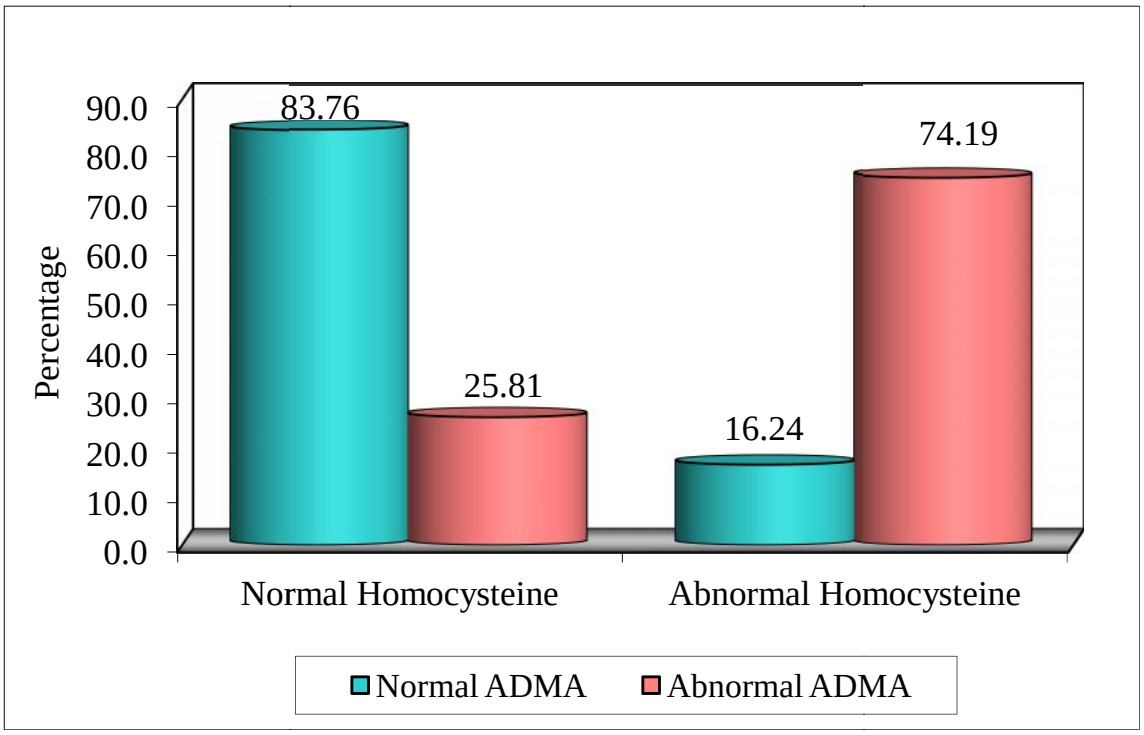
In this study, 81.7% had full term delivery, 14.1% had preterm delivery, 4.1 % had abortions, 15.7% had fetal growth restriction, 7% had gestational hypertension, 5.8% had preeclampsia, 0.8% had eclampsia, 1.6% had abruption and 1.2% had stillbirth.

Table IV: Association between Homocysteine and ADMA

ADMA	Homocysteine				Total
	Normal	%	Abnormal	%	
Normal	98	83.76	19	16.24	117
Abnormal	32	25.81	92	74.19	124
Total	130	53.94	111	46.06	241
Chi-square= 81.3820, p=0.0001*					

*p<0.05

Figure IV: Association between Homocysteine and ADMA

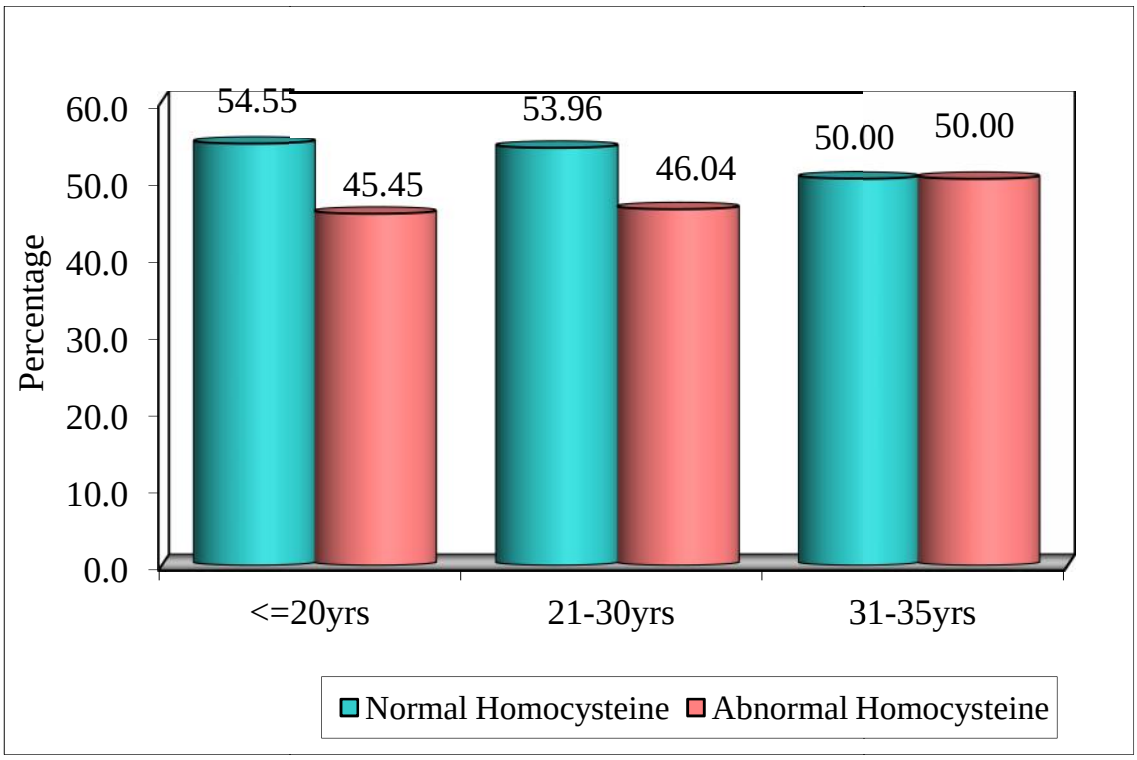


Out of the 241 samples analyzed, Hcy was increased in 111 women of which 92 women had abnormal levels of ADMA also and it is statistically significant (p=0.0001).

Table V: Association between age groups and Homocysteine

Age groups	Homocysteine				Total	%
	Normal	%	Abnormal	%		
<=20yrs	18	54.55	15	45.45	33	13.69
21-30yrs	109	53.96	93	46.04	202	83.82
31-35yrs	3	50.00	3	50.00	6	2.49
Mean age	23.84		24.18		24.00	
SD age	3.08		3.36		3.21	
Total	130	53.94	111	46.06	241	100.00
Chi-square=0.0424 p = 0.9794						

Figure V: Association between age groups and Homocysteine.

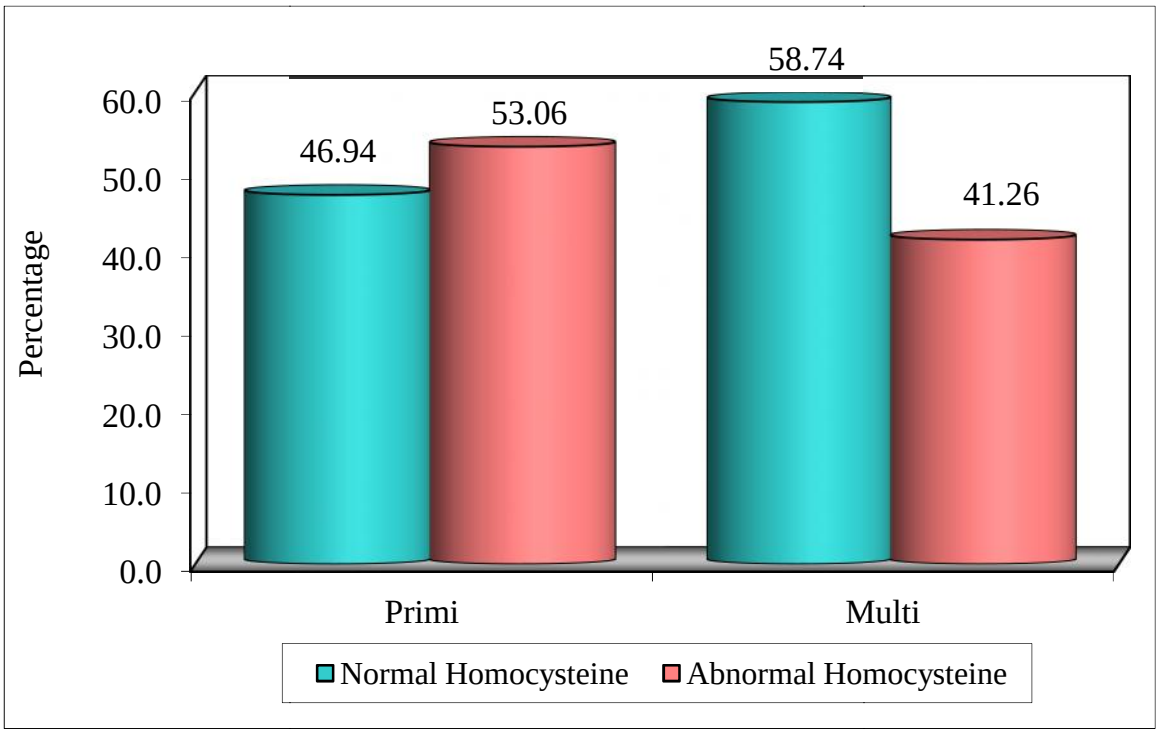


There is no significant difference in the levels of homocysteine with age group.

Table VI: Association between obstetric scores and Homocysteine

Obstetric scores	Homocysteine				Total	%
	Normal	%	Abnormal	%		
Primigravida	46	46.94	52	53.06	98	40.66
Multigravida	84	58.74	59	41.26	143	59.34
Total	130	53.94	111	46.06	241	100.00
Chi-square=3.2602, p=0.0713						

Figure VI: Association between obstetric scores and Homocysteine

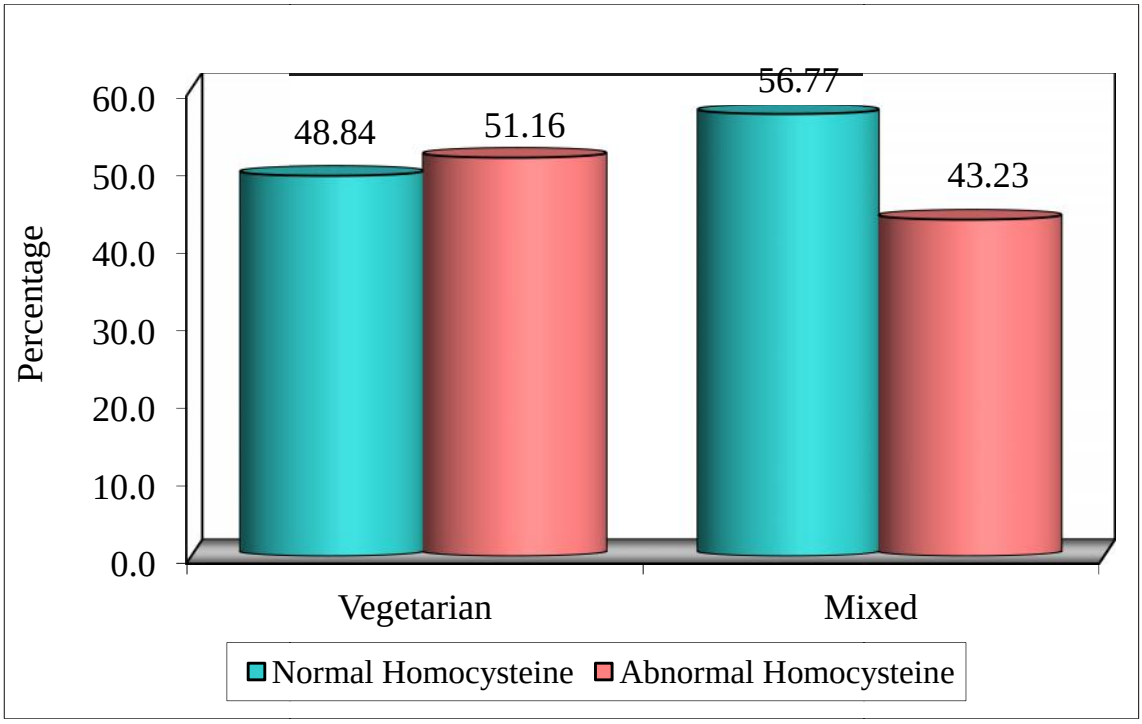


53% of primigravidae and 41.2% of multigravidae had abnormal levels of homocysteine but it is not statistically significant.

Table VII: Association between Diet and Homocysteine

Diet	Homocysteine				Total	%
	Normal	%	Abnormal	%		
Vegetarian	42	48.84	44	51.16	86	35.68
Mixed	88	56.77	67	43.23	155	64.32
Total	130	53.94	111	46.06	241	100.00
Chi-square=1.4022 p = 0.2361						

Figure VII: Association between Diet and Homocysteine



51.1% of vegetarians and 43.2% of mixed diet population had abnormal levels of homocysteine but it is not significant statistically.

Table VIII: Association between Homocysteine and pregnancy outcomes

Serial no.	Outcome	No. of cases with increased Hcy	Total no. of cases	P value
1.	Abortions	4	10	0.945@
2.	Preterm delivery	24	34	0.002*
3.	Hypertensive disorders of pregnancy -33			
a)	Gestational HTN	7	17	0.675
b)	Preeclampsia	8	14	0.391
c)	Eclampsia	1	2	1.00@
4.	FGR	26	38	0.003*
5.	Abruption	1	4	0.729@
6.	Stillbirth	2	3	0.89@

*p value < 0.05, @applied Yates corrected chi-square

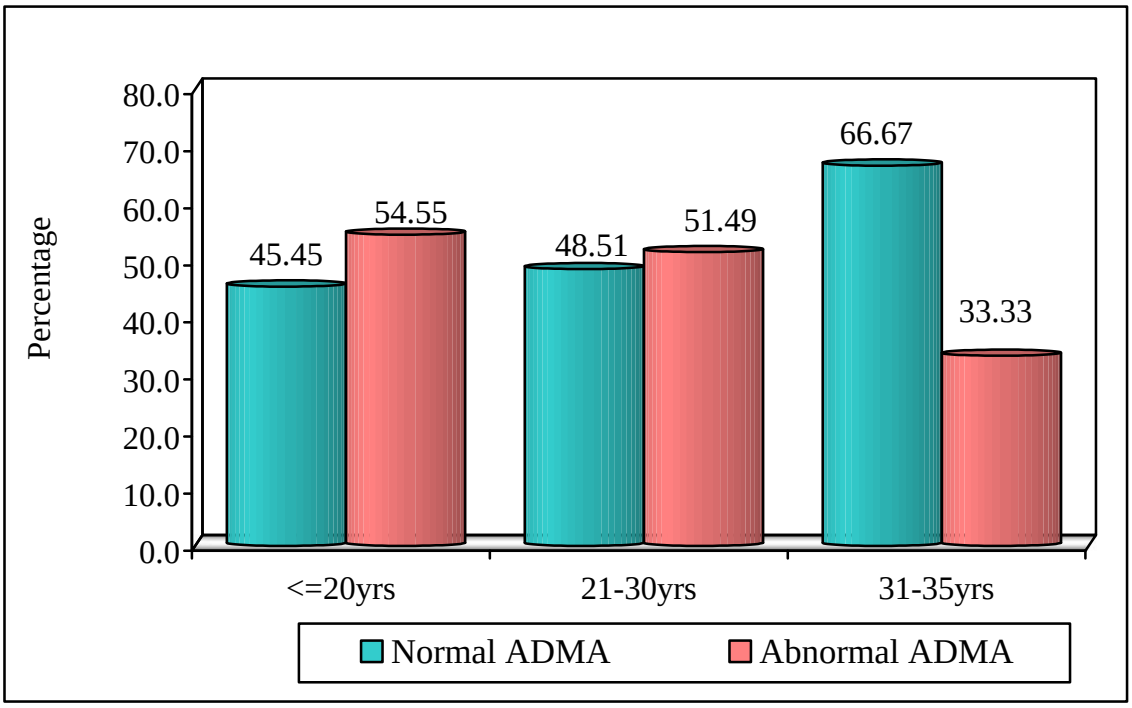
Increased levels of homocysteine were associated with preterm delivery and fetal growth restriction and it is statistically significant.

There were total 197 full term deliveries of which 114 (57.87%) had normal homocysteine levels. This is statistically significant (p value-0.01).

Table IX: Association between age groups and ADMA

Age groups	ADMA				Total	%
	Normal	%	Abnormal	%		
<=20yrs	15	45.45	18	54.55	33	13.69
21-30yrs	98	48.51	104	51.49	202	83.82
31-35yrs	4	66.67	2	33.33	6	2.49
Total	117	48.55	124	51.45	241	100.00
Chi-square=0.9152 p = 0.6331						

Figure VIII: Association between age groups and ADMA



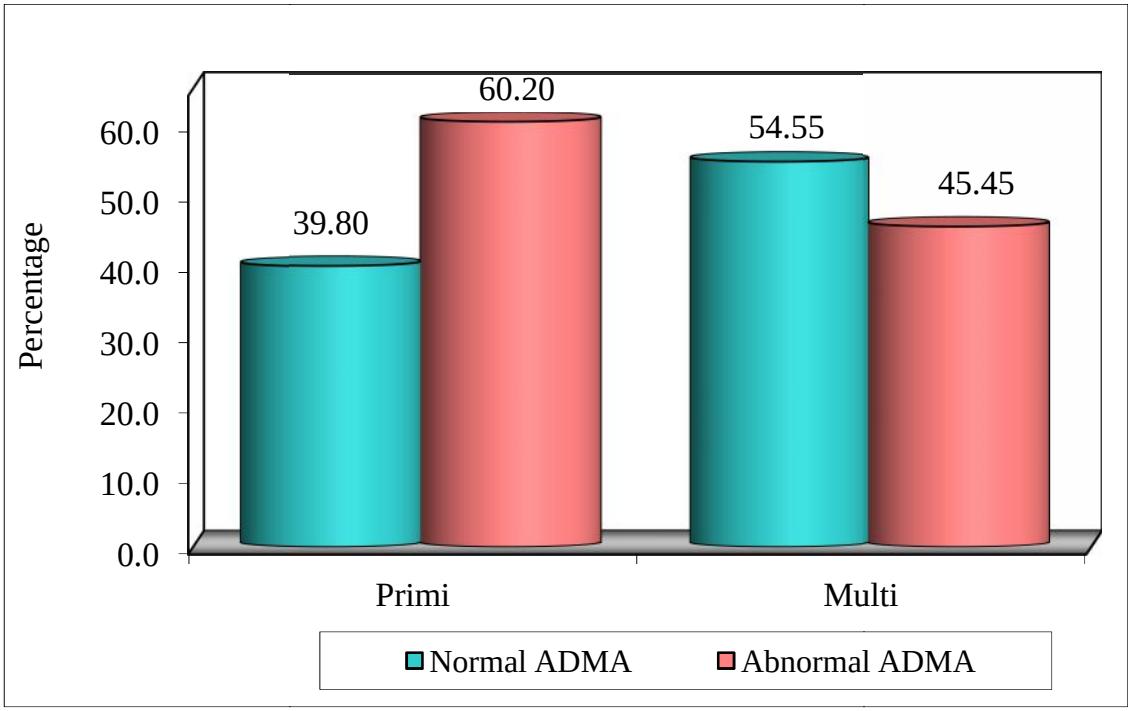
There is no significant difference in the levels of ADMA with age group.

Table X: Association between obstetric scores and ADMA

Obstetric scores	ADMA				Total	%
	Normal	%	Abnormal	%		
Primigravida	39	39.80	59	60.20	98	40.66
Multigravida	78	54.55	65	45.45	143	59.34
Total	117	48.55	124	51.45	241	100.00
Chi-square=5.0642 p = 0.0241*						

*p<0.05

Figure IX: Association between obstetric scores and ADMA

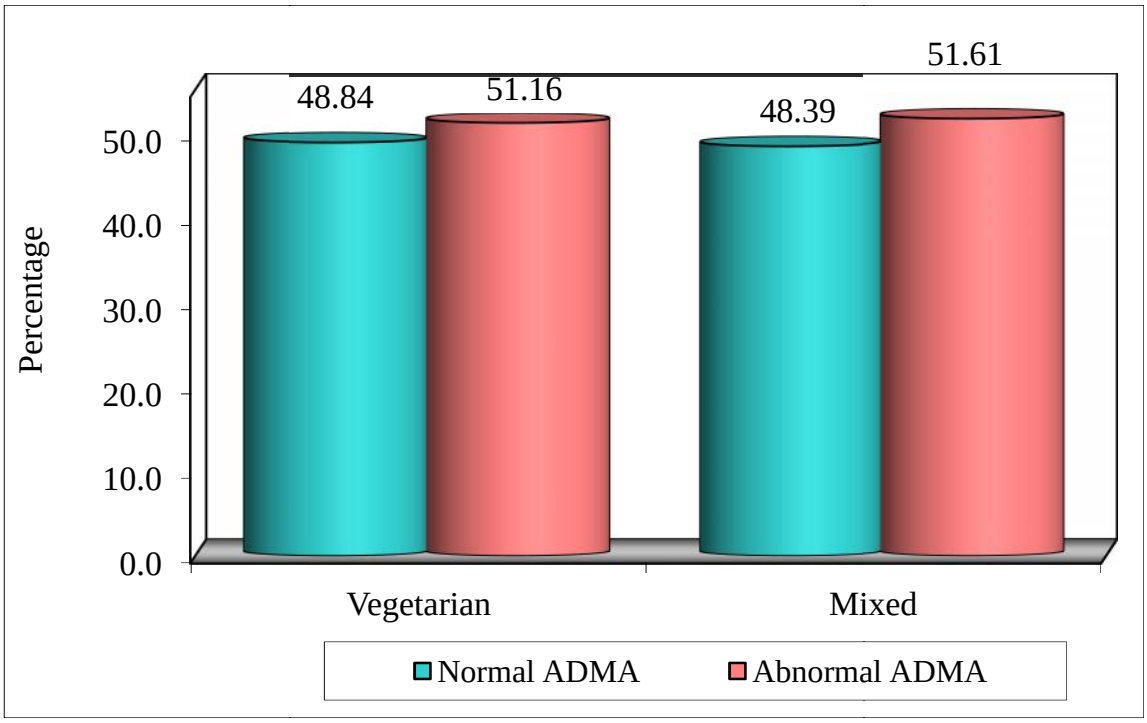


60.2% of primigravidae and 45.45% of multigravidae had abnormal levels of ADMA and it is statistically significant.

Table XI: Association between Diet and ADMA

Diet	ADMA				Total	%
	Normal	%	Abnormal	%		
Vegetarian	42	48.84	44	51.16	86	35.68
Mixed	75	48.39	80	51.61	155	64.32
Total	117	48.55	124	51.45	241	100.00
Chi-square=0.0042 p = 0.9471						

Figure X: Association between Diet and ADMA



51.16% of vegetarians and 51.61% of mixed diet population had high levels of ADMA but it is not statistically significant.

Table XII: Association between ADMA levels and pregnancy outcomes

Serial no.	Outcome	No. of cases with increased ADMA	Total no. of cases	P value
1.	Abortions	6	10	0.819@
2.	Preterm delivery	28	34	0.001*
3.	Hypertensive disorders of pregnancy-33			
a)	Gestational HTN	11	17	0.257
b)	Preeclampsia	13	14	0.001*
c)	Eclampsia	2	2	0.503@
4.	FGR	28	38	0.003*
5.	Abruption	4	4	0.146@
6.	Stillbirth	3	3	0.266@

*p< 0.05, @applied Yates corrected chi-square

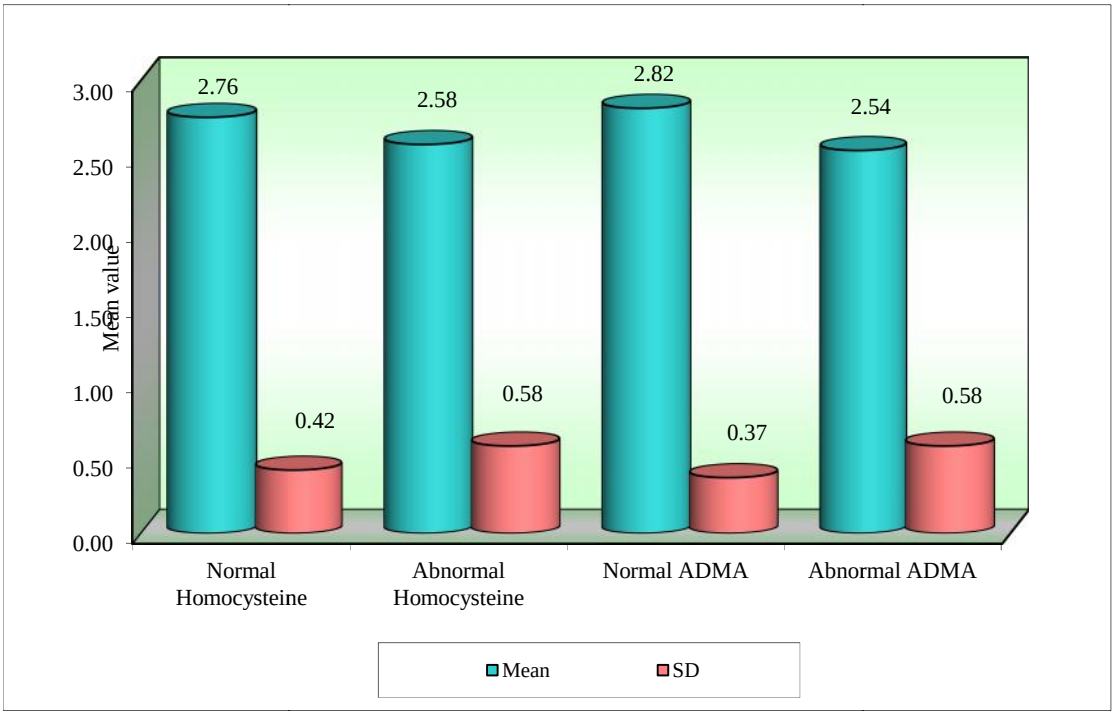
Increased levels of ADMA were associated with preterm delivery, preeclampsia and fetal growth restriction and it is statistically significant.

Out of 197 full term deliveries, 107 (54.31%) had normal ADMA levels and this is statistically significant (p value – 0.001)

Table XIII: Comparison of Homocysteine and ADMA status with mean Birth weight by t test

Variable		N	Mean	SD	t-value	P-value
Homocysteine	Normal Homocysteine	130	2.76	0.42	2.8869	0.0042*
	Abnormal Homocysteine	111	2.58	0.58		
ADMA	Normal ADMA	117	2.82	0.37	4.2950	0.0001*
	Abnormal ADMA	124	2.54	0.58		

Figure XI: Comparison of Homocysteine and ADMA status with mean Birth weight by t test



Increased levels of homocysteine and ADMA were associated with lower mean birth weight and this is statistically significant.

Table XIV: Association with pregnancy outcomes when both homocysteine and ADMA were increased

Serial no.	Outcome	No. of cases with increased Hcy and ADMA	Total no. of cases	P value
1.	Abortions	4	10	0.881
2.	Preterm delivery	20	34	0.006*
3.	Hypertensive disorders-33			
a)	Gestational HTN	6	17	0.82
b)	Preeclampsia	10	14	0.007*
c)	Eclampsia	1	2	0.719
4.	FGR	23	38	0.0016*
5.	Abruption	1	4	0.595@
6.	Stillbirth	2	3	0.298@

*p<0.05, @applied corrected chi-square

This table shows that when both homocysteine and ADMA were abnormal, there was increased risk of preterm delivery, preeclampsia and fetal growth restriction that is statistically significant with p values of 0.006, 0.007 and 0.0016 respectively.

Table XV: Multiple logistic regression analysis of Homocysteine levels with different characteristics

Characteristics	OR	95% CI for OR		p-value
		Lower	Upper	
1) Age groups				
<=20yrs	Ref.			
21-30yrs	1.11	0.49	2.52	0.7950
31-35yrs	1.97	0.30	12.83	0.4800
2) Obstetric (primi vs multi)	0.62	0.35	1.12	0.1130
3) Diet (veg vs mixed)	0.71	0.41	1.26	0.2440
4) Outcomes				
Abortion (No vs Yes)	1.07	0.24	4.89	0.9280
Stillbirth	2.33	0.09	59.52	0.6090
Preterm (No vs Yes)	3.54	1.03	12.19	0.0450*
Gestational HTN (No vs Yes)	0.94	0.32	2.76	0.9080
PE (No vs Yes)	1.09	0.31	3.77	0.8940
Eclampsia (No vs Yes)	0.94	0.02	38.93	0.9740
FGR (No vs Yes)	2.87	1.32	6.21	0.0080*
Abruption (No vs Yes)	0.10	0.01	1.55	0.1000

*$p<0.05$

Multiple logistic regression analysis showed that high levels of homocysteine were associated with preterm delivery and fetal growth restriction.

Table XVI: Multiple logistic regression analysis of ADMA levels with different characteristics

Characteristics	OR	95% CI for OR		p-value
		Lower	Upper	
1)Age groups				
<=20yrs	Ref.			
21-30yrs	1.11	0.49	2.52	0.7950
31-35yrs	1.97	0.30	12.83	0.4800
2)Obstetric (primi vs multi)	0.62	0.35	1.12	0.1130
3)Diet (veg vs mixed)	0.71	0.41	1.26	0.2440
4)Outcomes				
Abortion (No vs Yes)	1.07	0.24	4.89	0.9280
Stillbirth	2.33	0.09	59.52	0.6090
Preterm (No vs Yes)	3.54	1.03	12.19	0.0450*
Full term (No vs Yes)	0.92	0.40	2.11	0.8340
Gestational hypertension (No vs Yes)	0.94	0.32	2.76	0.9080
Pre eclampsia (No vs Yes)	1.09	0.31	3.77	0.8940
Eclampsia (No vs Yes)	0.94	0.02	38.93	0.9740
Fetal growth restriction (No vs Yes)	2.87	1.32	6.21	0.0080*
Abruption (No vs Yes)	0.10	0.01	1.55	0.1000

*$p<0.05$

Multiple logistic regression analysis showed that high levels of ADMA were associated with preterm delivery and fetal growth restriction but not with preeclampsia as compared to chi-square test.

In intend to treat analysis, the lost to follow up cases were taken as having normal outcome and the following results were obtained:

Table XVII: Association between homocysteine with pregnancy outcomes

Serial no.	Outcome	No. of cases with increased Hcy	Total no. of cases	P value
1.	Abortions	4	10	0.363
2.	Preterm delivery	24	34	0.003*
3.	Hypertensive disorders of pregnancy-33			
a)	Gestational HTN	6	17	0.548
b)	Preeclampsia	10	14	0.493
c)	Eclampsia	1	2	0.960
4.	FGR	23	38	0.05*
5.	Abruption	1	4	0.349
6.	Stillbirth	2	3	0.14

Table XVIII: Association between ADMA with pregnancy outcomes

Serial no.	Outcome	No. of cases with increased ADMA	Total no. of cases	P value
1.	Abortions	6	10	0.851
2.	Preterm delivery	28	34	0.0001*
3.	Hypertensive disorders of pregnancy-33			
a)	Gestational HTN	11	17	0.298
b)	Preeclampsia	13	14	0.002*
c)	Eclampsia	2	2	0.177
4.	FGR	28	38	0.035*
5.	Abruption	4	4	0.05
6.	Stillbirth	3	3	0.34

*$p < 0.05$

The results as per intend to treat analysis are same as the results previously discussed.

DISCUSSION

Abnormalities in the metabolism of Homocysteine (Hcy) and Asymmetric Dimethyl Arginine (ADMA) leads to their increased levels that have adverse effects on the pregnancy like abortion, preterm delivery, hypertensive disorders of pregnancy, fetal growth restriction, abruption and stillbirth. Correction of this metabolic derangement with vitamin B12 and folic acid supplementation (pre-conceptional and antenatal) can decrease the morbidity and mortality burden significantly.

The incidence of Hyperhomocysteinemia in early pregnancy as per this study was 48.22% and similar incidence of 43.3% was observed in a study conducted by Samuel et al in Bangalore.[10]

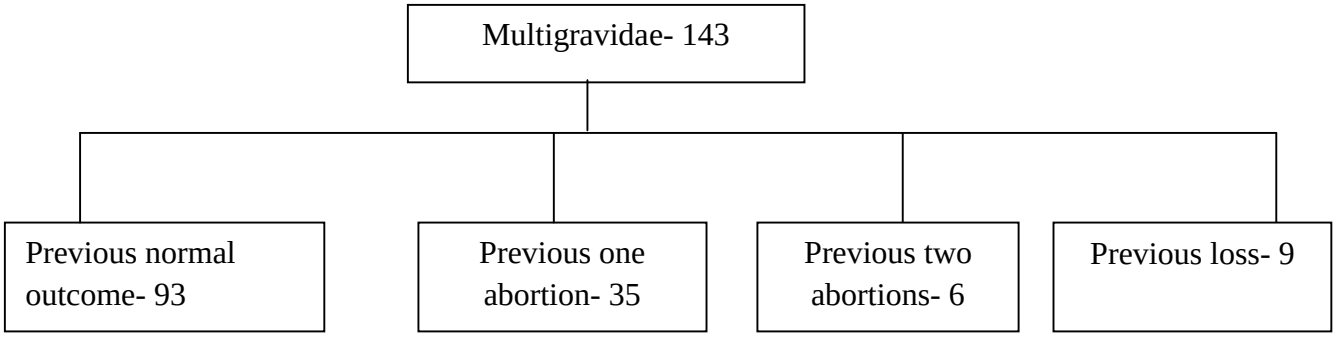
Minimum and maximum values of homocysteine were 2.1µmol/L and 96µmol/L respectively. Minimum and maximum values of ADMA were 0.1µmol/L and 9µmol/L respectively.

In this study, out of 111 abnormal values of homocysteine, 92 (82.9%) were also associated with abnormal levels of ADMA and this was statistically significant with a p value of 0.0001. In a study conducted by Dayal et al, it was noticed that in monkeys fed with hyperhomocystienemic diet, there was a three-fold increase in the levels of plasma homocysteine and ADMA. This study proved the metabolic dependence of homocysteine and ADMA.[8]

In the present study, 83.8% patients belonged to the age group of 21-30 years. 59.3% were multigravidae and 64.3% consumed mixed diet.

Hyperhomocysteinemia and high levels of ADMA were prevalent among primigravidae (53% and 60.2% respectively) compared to multigravidae (41.2% and 45.4% respectively) though the difference was not statistically significant with homocysteine (p value was 0.07) and was significant with ADMA (p value is 0.02).

Among 143 multigravidae, 41 cases had previous history of spontaneous abortions (35 had history of 1 abortion and 6 had history of 2 abortions) and 9 women had previous pregnancy loss after the period of viability.



- Among women with previous 1 abortion:

S.no	Homocysteine	ADMA	Outcome	No. of cases
1.	Normal	Normal	Normal	16
			Abortion	1
2.	Abnormal	Abnormal	Normal	3
			Preterm delivery	2
			Lost to follow up	2
3.	Abnormal	Normal	Normal	3
			Gestational HTN	1
			Lost to follow up	2
4.	Normal	Abnormal	Gestational HTN	1
			FGR	1
			Lost to follow up	3
Total				35

Out of the 35 women with previous one abortion, 17(48.57%) had normal levels of homocytseine and ADMA and the outcome was normal in 16 women.

18 (51.4%) women with previous one abortion had increased levels of either homocytseine or ADMA or both. Of which, 6 had normal outcome and 7 were lost to follow up, rest 5 had adverse outcomes.

- Among 6 women with previous 2 abortions:

S.no	Homocysteine	ADMA	Outcome	No. of cases
1.	Normal	Normal	-	0
2.	Abnormal	Abnormal	Normal	2
			Preterm delivery, FGR	1
3.	Abnormal	Normal	Lost to follow up	1
4.	Normal	Abnormal	Abortion	1
			PE and FGR	1
Total				6

As depicted above, none had normal levels of both homocytseine and ADMA. Only 2 (33.3%) women had normal outcome and rest 4 (66.7%) women had adverse outcomes. Thus it is observed that homocytseine and ADMA levels were abnormal in women with more than one previous abortion and tend to have adverse outcomes in the next pregnancy.

- Among women with previous pregnancy loss after the period of viability:

S.no	Homocysteine	ADMA	Outcome	No. of cases
1.	Normal	Normal	Normal	1
			Preterm delivery	1
			Lost to follow up	1
2.	Abnormal	Abnormal	Abortion	2
			Preterm delivery	2
3.	Abnormal	Normal	-	0
4.	Normal	Abnormal	Normal	1
			Preterm and stillbirth	1
Total				9

Homocytseine and ADMA levels were increased in 6 out of 9 women (66.67%) and 5 of them had adverse outcomes in the subsequent pregnancy.

- Among 143 multigravidae,
    - ✓ 59 had high homocysteine levels. 21 out of 59 (35.6%) had previous abortion or pregnancy loss.
    - ✓ 65 had high ADMA levels. 24 out of 65 (36.9%) had previous abortion or pregnancy loss.

Thus, the Hcy and ADMA will be elevated in women who had previous bad obstetric history and may affect the subsequent pregnancy.

In the present study, 64.3% consumed mixed diet of which 43% and 51 % women had abnormal levels of Homocytseine and ADMA respectively but this was not statistically significant (p value – 0.23 and 0.94 respectively). This can be attributed to the infrequent consumption of meat who consumes mixed diet in this region.

Incidence of gestational hypertension was 7.05%, preeclampsia was 5.81% and eclampsia was 0.83% in this study. Thus, the incidence of hypertensive disorders in pregnancy in this study was 13.6% (33 cases). The incidence of hypertensive disorders in pregnancy in this study is almost double compared to a study conducted by Sajith et al in which the incidence of hypertensive disorders in pregnancy was 7.8% and the prevalence of gestational hypertension, preeclampsia and eclampsia were 1.5%, 5.6 % and 0.60 % respectively. [7]

The incidence of miscarriage in this study was 4.15%.This is comparable to the results of a baseline study conducted by Bellad et al on 5,469 pregnancies in which the incidence of miscarriage was 5.4%.[39]

Stillbirth rate in this study was 1.24% while the stillbirth rate was 2.6% as per in the baseline study conducted by Bellad et al.[39] This difference could be due to the small sample size and this study being a hospital based study rather than a community based study.

The incidence of abruption in the present study was 1.66%. As per a retrospective study conducted by Shrivastava et al at Kolar, the incidence of abruption among 4956 pregnant women was 2%.[40]

High homocysteine levels were seen among vegetarians(51.1%) than in people who consume mixed diet(43.2%) though the difference was not statistically significant (p value is 0.23). In a study conducted by Samuel et al, there was high prevalence of vitamin B12 deficiency and high homocysteine levels among primigravidae and who consume vegetarian diet.[10]

Among 111 women with increased homocysteine levels in this study, only 8 (7%) were associated with preeclampsia but it was not statistically significant. In a case control study conducted by Demir et al, mean serum homocysteine levels were significantly higher in preeclampsia than in control group.[14]

In the present study, FGR was seen in 38 women of which, 26 (68.42%) had high levels of homocysteine and this was statistically significant with a p value of 0.003. This is comparable to a study conducted by Laskowska et al which showed that homocysteine levels (measured by ELISA method) were higher among pregnant women who developed FGR and preeclampsia with or without FGR.[41]

Out of 34 women who had preterm delivery, 24 women (70.59%) had high levels of homocysteine. p value is 0.002 and was statistically significant. This can be compared to the Hordaland Homocysteine study conducted by Vollset et al which showed that folic acid deficiency is associated with high homocysteine levels which led to neural tube defects, preterm delivery, preeclampsia, low birth weight and fetal death.[34]

In the present study, 92.8 % cases of preeclampsia had increased ADMA levels and it was statistically significant with a p value of 0.001. In a longitudinal study conducted by Lopez-Alarcon et al at Mexico, serial determinations of ADMA and homocysteine were done every month from the first visit till delivery in 252

women. Out of 252, 49 developed preeclampsia and 24 had complications other than preeclampsia. It was observed that ADMA and homocysteine levels were increased 1 month prior to the onset of preeclampsia. Thus, the measurement of these biomarkers is an important tool in the prediction of preeclampsia.[17]

82.3% of women with preterm deliveries had increased levels of ADMA in this study and this was statistically significant with a p value of 0.001. In a study conducted by Bassareo et al, it was shown that high ADMA levels (measured by High performance Liquid Chromatography) in pregnancy were associated with preterm deliveries and also the ADMA levels in such preterm infants were high which further increase the risk of adverse cardiovascular effects in the adult life.[42]

73.68% of FGR cases had high ADMA levels and was statistically significant with a p value of 0.003 in this study. This association was proved in a study conducted by Laskowska et al which showed that ADMA levels were higher in pregnant women who developed preeclampsia, FGR, eclampsia and HELLP syndrome (Hemolysis, Elevated Liver enzymes, Low Platelets).[43]

The mean birth weight was lower in women with high homocysteine and ADMA levels and was statistically significant in the present study.

The mean birth weight with normal homocysteine level was 2.76kg and it was 2.58kg with high level of homocysteine. The p value was 0.0042. The mean birth weight with normal ADMA level was 2.82kg and it was 2.54kg with high ADMA levels with a p value of 0.0001. In a study conducted by Maruta et al, there was no significant association between the levels of homocysteine, ADMA and L-arginine levels with the birth weight.[25]

A study conducted by Kim et al has showed that the prenatal folic acid supplementation not only prevents neural tube defects but also decreases the risks of preeclampsia and fetal growth restriction. But this association was not seen with other outcomes like preterm birth, abruption, and gestational diabetes.[44]

It is evident from this study that high homocysteine and ADMA levels are associated with adverse outcomes in pregnancy. ADMA alone rather than homocysteine can be used as a predictor of adverse outcomes in pregnancy due to better statistical significance.

Limitation:

- Small sample size is the main limiting factor as it is an expensive procedure.
- Only one time estimation of homocysteine and ADMA was done in this study. The trends in the changes of these levels during the course of pregnancy and its association with the pregnancy outcomes could not be elucidated.
- Though the occurrence of some adverse effects like abortion, abruption, stillbirth and eclampsia were noticed exclusively among women with high levels of homocysteine and ADMA, there was no statistical significance. This could be due to the small sample size. This can also be attributed to the cases lost to follow up as 78% (32 out of 41 cases) of lost to follow up cases had abnormal levels of homocysteine and ADMA.

CONCLUSIONS

Homocysteine and Asymmetric Dimethyl Arginine (ADMA) are associated with adverse outcomes not only in non-pregnant state but also in pregnancy. From this study, it is evident that increased levels of homocysteine and ADMA in early pregnancy are associated with adverse pregnancy outcomes like abortion, preterm delivery, hypertensive disorders of pregnancy, fetal growth restriction and stillbirth.

Pre-conceptional and antenatal folic acid and vitamin B12 supplementation (either oral or parenteral) may not only decrease the incidence of neural tube defects but can also prevent these adverse pregnancy outcomes. This will decrease the burden of maternal and neonatal morbidity and mortality.

SUMMARY

This study was conducted from January 2017 to July 2018 at teaching hospital attached to KLE Academy of Higher Education and Research, Belagavi.

The adverse pregnancy outcomes include abortion, preterm delivery, hypertensive disorders in pregnancy, fetal growth restriction, abruption, intrauterine fetal death and stillbirth.

This study was chosen to measure the levels of Homocysteine (Hcy) and Asymmetric Dimethyl Arginine (ADMA) in early pregnancy (less than 18weeks gestation) in this region and to find out the association between these levels with the above mentioned adverse outcomes of pregnancy.

Total 299 pregnant women were screened and 282 were enrolled in the study. Homocysteine and ADMA levels were measured by Enzyme Linked Immuno Sorbent Assay (ELISA) method and the women were followed up. 241 women were followed up in the study and 41 were lost to follow up.

Hyperhomocysteinemia was found to be 48.22% and increased ADMA levels were found in 52.48% in this population. Both homocysteine and ADMA were increased in 38.29%. However all these cases were not compared with the outcome of pregnancy due to lost to follow up.

Hyperhomocysteinemia leads to increased ADMA levels by interfering in its metabolism by inhibiting an enzyme Dimethylarginine Dimethyl Amino Hydrolase (DDAH) and this was statistically significant (p=0.0001).

There was no statistical association between the levels of homocysteine and ADMA with the age (p=0.97 and 0.63 respectively).

Increased levels of homocysteine and ADMA were seen among primigravidae though the statistical significance was seen only with ADMA (p=0.07 and 0.02 respectively).

Increased levels of homocysteine were seen among vegetarians while increased ADMA was seen almost equally in both the diet groups although this was not statistically significant (p=0.23and 0.94 respectively). This can be attributed to the infrequent meat consumption even among mixed diet population.

Increased levels of homocysteine were associated with the occurrence of preterm delivery and fetal growth restriction and this was statistically significant (p=0.002 and 0.003 respectively).

Increased levels of ADMA were associated with the occurrence of preterm delivery, preeclampsia and fetal growth restriction and this was statistically significant (p=0.001, 0.001 and 0.003 respectively). Though all the cases of eclampsia, abruption and stillbirths had high levels of ADMA, there was no statistical significance. This may be due to inadequate number of samples.

The mean birth weight was lower in the group with increased homocysteine and ADMA which was statistically significant (p=0.004 and 0.0001 respectively).

Thus, from this study, the association between the homocysteine and ADMA levels with the adverse pregnancy outcomes like preterm delivery, preeclampsia and fetal growth restriction can be noted. This information can be used to predict the occurrence of these adverse events in the pregnancy and helps us to categorize the pregnant women into low risk and high-risk groups and the appropriate management can be planned. These complications can be prevented with the supplementation of vitamin B12 and folic acid during both pre-conceptional and antenatal period.

BIBLIOGRAPHY

1. Robert JM, August PA, Bakris G, Barton J, Bernstein IM, Druzin M et al. Executive summary: hypertension in pregnancy. American college of Obstetricians and Gynecologists. Obstet Gynecol 2013;vol 122, No. 5 :1122-31.

2. Albayrak M, Ozdemir I, Demiraran Y, Dikici S. Atypical preeclampsia and eclampsia: report of four cases and review of the literature. J Turkish-German Gynecol Assoc; 2010;11: 115–7.

3. Zanelli SA, Rogol AD. Short children born small for gestational age outcomes in the era of growth hormone therapy. Growth Hormone and IGF Research 38 (2018) 8-13.

4. Sawant V, Patil A, Patki S.. The Role of Serum Vitamin B12 and Homocysteine in Recurrent Pregnancy Loss. Indian Journal of Science and Research. 2015;vol 4, issue 5: 1980-1983.

5. Choudhary V, Somani SR, Somani S. Evaluation of Risk factors and Obstetric and Perinatal Outcome in Abruptio Placenta. IOSR Journal of Dental & Medical Sciences; volume 14, issue 5, Ver VII. 2015; 36-39. DOI: 10.9790/0853-14573639.

6. Late Intrauterine Fetal Death and Stillbirth. Royal College of Obstetricians and Gynaecologists (RCOG) Green-top Guidelines No 55. 2010;(55).

7. Sajith M, Nimbargi V, Modi A, Sumariya R, Pawar A. Incidence of pregnancy induced hypertension and prescription pattern of antihypertensive drugs in

pregnancy. Intranational Journal of pharma Sciences & Research. 2014;5(04):163–70.

8. Dayal S, Lentz SR. ADMA and hyperhomocysteinemia. Vascular Medicine. 2005;10:S27–33.

9. Böger RH, Bode-Böger SM, Szuba A, Tsao PS, Chan JR, Tangphao O, et al. Asymmetric Dimethylarginine (ADMA): A novel risk factor for endothelial dysfunction. Its Role in Hypercholesterolemia. 1998;1842–7.

10. Samuel TM, Duggan C, Thomas T, Bosch R, Rajendran R, Virtanen SM, et al. Vitamin B12 intake and status in early pregnancy among urban South Indian women. Ann Nutr Metab 2013;62(2):113–22.

11. Sesikaran B. Revised RDA for Indians (Report of th expert group of ICMR), National Institute of Nutrition : 2010.

12. Devi SM, Balachandar V, Lee SI, Kim IH. An outline of meat consumption in the Indian population-A pilot review. Korean Journal of Food Science & Animal Resource. 2014;34(4):507–15.

13. Atamer Y, Koçyigit Y, Yokus B, Atamer A, Erden AC. Lipid peroxidation, antioxidant defense, status of trace metals and leptin levels in preeclampsia. European Journal of Obstetrics & Gynecology and Reproductive Biology. 2005;119(1):60–66.

14. Demir B, Demir S, Pasa S, Guven S, Atamer Y, Atamer A et al. The role of homocysteine, asymmetric dimethylarginine and nitric oxide in pre-eclampsia. Journal of Obstetrics & Gynaecology. 2012;32(6):525–8.

15. Serdar Z, Gür E, Develioğlu O, Çolakoğullari M, Dirican M. Placental and decidual lipid peroxidation and antioxidant defenses in preeclampsia - Lipid peroxidation in preeclampsia. Pathophysiology. 2002;9(1):21–25.

16. Poon LC, Nicolaides KH. Early Prediction of Preeclampsia. International Journal of Obstetrics & Gynecology. 2014:1–11. http://www.hindawi.com/journals/ogi/2014/297397/

17. Lõpez-Alarcõn M, Montalvo-Velarde I, Vital-Reyes VS, Hinojosa-Cruz JC, Leaños-Miranda A, Martínez-Basila A. Serial determinations of asymmetric dimethylarginine and homocysteine during pregnancy to predict pre-eclampsia: A longitudinal study. BJOG. 2015;122(12):1586–92.

18. Sánchez-Aranguren LC, Prada CE, Riaño-Medina CE, Lopez M. Endothelial dysfunction and preeclampsia: Role of oxidative stress. Frontiers in Physiology. 2014;(5), 372:1–11.

19. Jeruszka-Bielak M, Isman C, Schroder TH, Li W, Green TJ, Lamers Y. South Asian ethnicity is related to the highest risk of vitamin B12 deficiency in pregnant Canadian women. Nutrients. 2017;9(4);317:1–13.

20. Ramírez-Vélez R, Correa-Bautista JE, Martínez-Torres J, Meneses-Echávez JF, Lobelo F. Vitamin B12 concentrations in pregnant Colombian women: Analysis of nationwide data 2010. BMC Pregnancy Childbirth; 2016;16(1):1–7. http://dx.doi.org/10.1186/s12884-016-0820-4

21. Guerra-shinohara EM, Morita OE, Peres S, Pagliusi RA, Sampaio Neto LF, D'Almeida V et al. Low ratio of S-adenosylmethionine to S-adenosylhomocysteine is associated with vitamin deficiency in Brazilian

pregnant women and newborn. Am J Clin Nutr. 2004;80:1312-21.

22. Laskowska M, Laskowska K, Terbosh M, Oleszczuk J. A comparison of maternal serum levels of endothelial nitric oxide synthase, asymmetric dimethylarginine, and homocysteine in normal and preeclamptic pregnancies. Medical Science Monitor. 2013;19:430–7. http://www.medscimonit.com/abstract/index/idArt/883932.

23. Khalil AA, Tsikas D, Akolekar R, Jordan J, Nicolaides KH. Asymmetric dimethylarginine, arginine and homoarginine at 11-13 weeks gestation and preeclampsia: A case-control study. Journal of Human Hypertension. 2013;27(1):38–43.

24. Németh B, Ajtay Z, Hejjel L, Ferenci T, Ábrám Z, Murányi E et al. The issue of plasma asymmetric dimethylarginine reference range - A systematic review and meta-analysis. PLoS One. 2017;12(5). https://doi.org/10.1371/journal.pone.0177493.

25. Maruta E, Wang J, Kotani T, Tsuda H, Nakano T, Imai K, et al. Association of serum asymmetric dimethylarginine, homocysteine, and L-arginine concentrations during early pregnancy with hypertensive disorders of pregnancy. Clinica Chimica Acta. Elsevier; 2017;475(November):70–7. http://dx.doi.org/10.1016/j.cca.2017.10.007

26. Fatini C, Sofi F, Sticchi E, Gensini F, Gori AM, Fedi S, et al. Influence of endothelial nitric oxide synthase gene polymorphisms (G894T, 4a4b, T-786C) and hyperhomocysteinemia on the predisposition to acute coronary syndromes. American Heart Journal. 2004;147(3):516–21.

27. Noorbakhsh M, Kianpour M, Nematbakhsh M. Serum levels of asymmetric dimethylarginine, vascular endothelial growth factor, and nitric oxide metabolite levels in preeclampsia patients. ISRN Obstetrics & Gynecology. 2013:104213;1-5.

28. Meng W, Zhanashunbayaer, Lihua E, Rui L. Association between asymmetric dimethylarginine level and preeclampsia: A meta-analysis. Int J Clin Exp Med. 2017;10(6):8720–7.

29. Braekke K, Ueland PM, Harsem NK, Staff AC. Asymmetric dimethylarginine in the maternal and fetal circulation in preeclampsia. Pediatriac Research Foundation. 2009;66(4):411–5.

30. Mascarenhas M, Habeebullah S, Sridhar MG. Revisiting the role of first trimester homocysteine as an index of maternal and fetal outcome. Journal of Pregnancy. 2014 (123024) 1-6.

31. Bergen NE, Jaddoe VWV, Timmermans S, Hofman A, Lindemans J, Russcher H et al. Homocysteine and folate concentrations in early pregnancy and the risk of adverse pregnancy outcomes: the generation R study. BJOG. 2012;119(6):739–51.

32. Eskes TKAB. Clotting disorders and placental abruption: homocysteine-A new risk factor. European Journal of Obstetrics & Gynecology and Reproductive Biology. 2001;95(2):206–12.

33. Megahed MA, Taher IM. Folate and Homocysteine Levels in Pregnancy; Article 290, 0.1 CEC 2005;(April) 74-8.

34. Vollset SE, Refsum H, Irgens LM, Emblem BM, Tverdal A, Gjessing HK, et

al. Plasma total homocysteine , pregnancy complications , and adverse pregnancy outcomes : the Hordaland Homocysteine Study; American journal of clinical nutrition. 2000;71(4):962–8.

35. D'Uva M, Di Micco P, Strina I, Alviggi C, Iannuzzo M, Ranieri A, et al. Hyperhomocysteinemia in women with unexplained sterility or recurrent early pregnancy loss from Southern Italy: A preliminary report. Thrombosis Journal. 2007;5:10. 1–6.

36. Tsikas D, Bollenbach A, Savvidou MD. Inverse correlation between maternal plasma asymmetric dimethylarginine (ADMA) and birthweight percentile in women with impaired placental perfusion: circulating ADMA as an NO-independent indicator of fetal growth restriction? Amino Acids. Springer 2018;50(2):341–51. https://doi.org/10.1007/s00726-017-2522-2

37. Bassareo PP, Fanos V, Puddu M, Flore G, Mercuro G. Advanced intrauterine growth restriction is associated with reduced excretion of asymmetric dimethylarginine. Early Human Development. Elsevier Ltd; 2014;90(4):173–6. http://dx.doi.org/10.1016/j.earlhumdev.2014.01.010

38. Garg P, Jaryal AK, Kachhawa G, Deepak KK, Kriplani A. Estimation of asymmetric dimethylarginine (ADMA), placental growth factor (PLGF) and pentraxin 3 (PTX 3) in women with preeclampsia. Pregnancy Hypertension, Elsevier; 2018;(March):1-7. http://dx.doi.org/10.1016/j.preghy.2018.03.005

39. Bellad MB, Vidler M, Honnungar NV, Mallapur A, Ramadurg U, Charanthimath U et al. Maternal and Newborn Health in Karnataka State, India : The Community Level Interventions for Pre- Eclampsia (CLIP) Trial '

s Baseline Study Results . PLoS one 12 (1): e0166623. doi:10.1371/journal.pone.0166623.

40. Shrivastava V, Kotur P, Jauhari A. Maternal and fetal outcome among abruptio placentae cases at a rural tertiary hospital in Karnataka, India: a retrospective analysis. International Journal of Research in Medical Sciences. 2014;2(4):1655-8. DOI: 10.5455/2320-6012.ijrms20141177.

41. Laskowska M, Laskowska K, Oleszczuk J. Differences in the association between maternal serum homocysteine and ADMA levels in women with pregnancies complicated by preeclampsia and/ or intrauterine growth restriction. Hypertension in Pregnancy. 2013;32(1): 83-93.

42. Bassareo PP, Puddu M, Flore G, Deidda M, Manconi E, Melis A, et al. Could ADMA levels in young adults born preterm predict an early endothelial dysfunction? International Journal of Cardiology. 2012;159(3):217–9. http://dx.doi.org/10.1016/j.ijcard.2011.02.069

43. Laskowska M, Laskowska K, Leszczynska-Gorzelak B, Oleszczuk J. Asymmetric dimethylarginine in normotensive pregnant women with isolated fetal intrauterine growth restriction: A comparison with preeclamptic women with and without intrauterine growth restriction. The Journal of Maternal-fetal & Neonatal Medicine. 2011;24(7):936–42. DOI: 10.3109/14767058.2010.535873

44. Kim MW, Ahn KH, Ryu KJ, Hong SC, Lee JS, Nava-Ocampo AA, et al. Preventive effects of folic acid supplementation on adverse maternal and fetal outcomes. PLoS ONE 9(5): e97273. doi:10.1371/journal.pone.0097273

ANNEXURE I – ETHICAL CLEARANCE CERTIFICATE

K.L.E.UNIVERSITY'S
JAWAHARLAL NEHRU MEDICAL COLLEGE,
NEHRU NAGAR, BELAGAVI-590010 (KARNATAKA-INDIA)
(Accredited 'A' Grade by NAAC)

Website: http//www.jnmc.edu
E-Mail : dome@jnmc.edu

Phone: (+ 91-(0)831 Office : 2471350
Principal: 2471701
Fax No. +91 (0)831 – 2470759

Ref: MDC/DOME/ 80 **Date: 17/10/2016**

To,

Dr.
PG student in Obstetrics and Gynaecology,
J.N.Medical College,
BELAGAVI.

Sub: Institutional Ethical Clearance for the study.

With reference to the above, we wish to inform you that your proposed research project titled **"HOMOCYSTEINE AND ASYMMETRIC DIMETHYL ARGININE (ADMA) LEVELS IN EARLY PREGNANCY AND PREGNANCY OUTCOME – A DESCRIPTIVE OBSERVATIONAL STUDY AT TEACHING HOSPITAL ATTACHED TO KLE UNIVERSITY'S J N MEDICAL COLLEGE, BELAGAVI"**, is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee on Human Subjects Research.

(Dr. Arathi Darshan)
Member Secretary
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

(Dr. Ganga Pilli)
Chairman,
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

16

ANNEXURE I – CONSENT FORM

Study title- Homocysteine and Asymmetric Dimethyl arginine (ADMA) levels in early pregnancy and pregnancy outcome- A descriptive observational study at teaching hospital attached to KLE University's J.N Medical College, Belagavi conducted by Dr. _____, Post Graduate in M.S. Obstetrics And Gynaecology under the guidance of Dr._____, Department of Obstetrics And Gynaecology, J.N. Medical College, KLE university, Belagavi.

Introduction

You are invited to take part in a clinical research study. To help you decide, you should understand the study and what it will involve for you. To make an informed decision to take part- you should know the purpose of the study, the procedures, the benefits and the risks of the study, the discomforts and the precautions taken. This process is called 'informed consent'. Please take the time to read the following information carefully and discuss it with others.

It cannot be promised that the study will help you but in the future, the information we get from this study may help improve the future treatment of people with the same condition.

Once you have decided if you want to take part, you will be asked to sign the informed consent form.

What is the purpose of this research study?

Several studies shows that increased homocysteine and ADMA levels in early pregnancy are associated with adverse pregnancy outcomes on mother like hypertensive disorders in pregnancy, early placental separation, miscarriage and adverse effects on fetus like low birth weight etc. But no studies have been conducted

in this part of population. Therefore this study helps to anticipate the relation between homocysteine and ADMA levels in early pregnancy and its association with the outcome of pregnancy.

Expenses and payment

The test is provided at no cost to you. You will not receive any payment for taking part in this research study.

What will happen to me if I take part in this study?

Once you have signed the informed consent form, 3ml of blood is collected at the time of collection of blood for other obstetric investigations. The blood sample will be processed and the levels of homocysteine and ADMA levels will be measured in the lab and the values will be noted and pregnancy will be followed till the outcome.

The investigator will also be collecting some personal information and detailed medical history. This study data will be transcribed from your medical records to special forms.

Risks and benefits

There are no observable risks and benefits associated with the study.

What if you have a question?

In case you have any questions related to the study, in future or in case of study related injury or illness, you can contact Dr. _____, Department of Obstetrics And Gynaecology, KLE University's J.N Medical College,

Dr._____, Dept. Of Obstetrics and Gynaecology, KLE University's J.N Medical College, Belagavi

If you have any queries about your rights as a study subject, you may call **Dr. Ganga Pilli**, Professor of Pathology as Chairman of J. N. Medical College Institutional Ethics Committee on Human Subjects Research, Phone No.0831 2473777 ext-1527 at J.N.Medical College, Belagavi or phone number: 9480275601.

What will happen if you don't want to carry on with the study?

Your participation in this research is entirely voluntary. You are free to refuse to participate or you may withdraw from the study at any time without penalty or loss of benefits to which you are entitled. Your decision to withdraw will not affect your future medical care. The investigator holds the right to terminate the study at anytime, if for example, participant recruitment is inadequate.

Will your taking part in this study be kept confidential? How will your personal information be used?

Any information collected during the study will remain confidential. Your medical files will be reviewed only at the hospital (or study doctor's office) in order to check the information and verify the result without breaking your confidentiality.

By signing this consent form, you are giving permission for processing of your personal information in a database and transferring of this information or any part of it to people (mentioned above) involved in the study.

Thank you for reading this and considering if you will take part in this study.

Consent form

Study title: Homocysteine and Asymmetric Dimethyl arginine (ADMA) levels in early pregnancy and pregnancy outcome- A descriptive observational study at teaching hospital attached to KLE University's J.N Medical College, Belagavi.

Subject's name: _____

Please initial box

(i) I confirm that I have read and understood the information sheet for the above study and have had the opportunity to ask questions. ☐

(ii) I understood that my participation in the study is voluntary and that I am free to withdraw at anytime, without giving any reason, without my medical care or legal rights being affected. ☐

(iii) I understood that Sponsor of the clinical trial, others working on the Sponsor's behalf, the Ethics Committee and the regulatory authorities will not need my permission to look at my health records both in respect of the current study and any further research that may be conducted in relation to it, even if I withdraw from the trial. I agree to this access. However, I understood that my identity will not be revealed in any information released to third parties or published. ☐

(iv) I agree not to restrict the use of any data or results that arise from this study provided such a use is only for scientific purpose(s). ☐

(v) I agree to take part in the above study. ☐

Subject name: _____

Signature (or thumb impression) of the subject: _____

Date (dd-mm-yyyy): ☐☐ -☐☐ ☐☐☐☐

Name of the person obtaining informed consent: _____

Signature of the person obtaining informed consent: _____

(If a patient has limited ability to read and write, an impartial witness should be present during the entire informed consent discussion and his/her legally acceptable representative should sign on patient's behalf). In these instances the patient his/her thumb impression in the place of the signature.

Patient's Legally Acceptable Representative's Statement: NA ☐

I, as the patient's legally acceptable representative, was present during the consenting procedure and understand the preceding information describing this study. All of the questions regarding the study and the patient's participation in it have been answered to my satisfaction and that of the patient. I state that all aspects of the study were clearly presented during the consent procedure. The patient is willing to participate in the study and I sign below on his/her behalf testifying to this effect.

Name of the patient: _____

Name of the Legally Acceptable Representative: _____

Relationship to the patient: _____

Signature of the Legally Acceptable Representative: _____

Date (dd-mm-yyyy) : ☐☐ - ☐☐ ☐☐☐☐

Impartial Witness Declaration of Patient's Informed Consent : NA ☐

By signing the consent form, I attest that the information was accurately explained to and apparently understood by the patient and the legally acceptable representative (if applicable) and that informed consent was freely given by the patient.

Name of the Impartial Witness: _____

Signature of the Impartial Witness: _____

Date (dd-mm-yyyy): ☐☐ - ☐☐ ☐☐☐☐

ಸಂಶೋಧನಾ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವದಕ್ಕಾಗಿ ಕೊಡುವ ಒಪ್ಪಿಗೆ

ಅಧ್ಯಯನದ ಶೀರ್ಷಿಕೆ: "ಸ್ತ್ರೀಯರ ಗರ್ಭಧಾರಣೆಯ ಪ್ರಾರಂಭಿಕ ದಿನಗಳಲ್ಲಿ ಹೋಮೋಸಿಸ್ಟೈನ್ ಮತ್ತು ಅಸಿಮೆಟ್ರಿಕ್ ಡೈಮಿಥೈಲಾರ್ಜನೈನ್ (ಎಡಿಎಮ್ಎ) ಗಳ ಪ್ರಮಾಣ ಮತ್ತು ಗರ್ಭಧಾರಣೆಯ ಫಲಿತಾಂಶಗಳು" – ಕೆ.ಎಲ್.ಇ. ವಿಶ್ವವಿದ್ಯಾಲಯದ ಜೆ.ಎನ್. ಮೆಡಿಕಲ್ ಕಾಲೇಜ, ಬೆಳಗಾವಿಯ ತರಬೇತಿ ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ಮಾಡಿದ ಒಂದು ವಿವರಣಾತ್ಮಕ ಸವೇಕ್ಷಣದ ಅಧ್ಯಯನ"

ಪರಿಚಯ:

ನಿಮ್ಮನ್ನು ಒಂದು ವೈದ್ಯಕೀಯ ಸಂಶೋಧನೆಯಲ್ಲಿ ಭಾಗವಹಿಸಲು ಆಮಂತ್ರಿಸಲಾಗಿದೆ. ನೀವು ಸೂಕ್ತ ನಿರ್ಧಾರ ತೆಗೆದುಕೊಳ್ಳುವ ಸಲುವಾಗಿ, ನೀವು ಈ ಅಧ್ಯಯನದ ಬಗ್ಗೆ ಹಾಗೂ ಇದರಲ್ಲಿ ನಿಮ್ಮ ಪಾತ್ರವೇನು ಎಂಬು ಬಗ್ಗೆ ತಿಳದುಕೊಳ್ಳುವುದು ಅವಶ್ಯವಾಗಿದೆ. ಅದಕ್ಕಾಗಿ ನೀವು ಈ ಅಧ್ಯಯನದ ಉದ್ದೇಶ, ವಿಧಾನ, ಅಪಾಯ ಮತ್ತು ಪ್ರಯೋಜನಗಳು, ಅನುಭವಿಸಬಹುದಾದ ತೊಂದರೆಗಳು ಮತ್ತು ತೆಗೆದುಕೊಳ್ಳಬೇಕಾದ ಮುನ್ನೆಚ್ಚರಿಕೆ ಕ್ರಮಗಳ ಬಗ್ಗೆ ತಿಳದುಕೊಳ್ಳುವುದು ಅವಶ್ಯವಾಗಿದೆ. ಈ ವಿಧಾನಕ್ಕೆ ನಾವು "ಮಾಹತಿಯುಕ್ತ ಒಪ್ಪಿಗೆ" ಎಂದು ಹೇಳುತ್ತೇವೆ. ಆದ್ದರಿಂದ ನೀವು ಈ ಕೆಳಗಿನ ಮಾಹಿತಿಯನ್ನು ನಿಧಾನವಾಗಿ ಎಚ್ಚರಿಕೆಯಿಂದ ಓದಿ ಇತರರೊಂದಿಗೆ ಚರ್ಚೆ ಮಾಡಿಕೊಳ್ಳರಿ.

ಈ ಅಧ್ಯಯನದಿಂದ ಭವಿಷ್ಯದಲ್ಲಿ ನಿಮಗೆ ಯಾವುದೇ ಉಪಯೋಗವಾಗಬಹದು ಎಂಬ ಬಗ್ಗೆ ಭರವಸೆ ಕೊಡುವದಲ್ಲ. ಆದರೆ ಈ ಅಧ್ಯಯನದಿಂದ ದೊರೆಯುವ ಮಾಹತಿಯಂದ ಭವಿಷ್ಯದಲ್ಲಿ ಇದೇ ರೀತಿಯ ತೊಂದರೆಯಿಂದ ಬಳಲುತ್ತಿರುವ ಜನರಿಗೆ ನೀಡುವ ಚಿಕಿತ್ಸೆಯನ್ನು ಸುಧಾರಿಸಬಹುದು.

ನೀವು ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಲು ನಿರ್ಧರಿಸಿದರೆ, ನಿಮ್ಮನ್ನು ಈ ಮಾಹತಿಯುಕ್ತ ಒಪ್ಪಿಗೆ ಪತ್ರಕ್ಕೆ ಸಹಿ ಮಾಡಲು ಕೋರಲಾಗುವುದು.

ಈ ಸಂಶೋಧನೆಯ ಮುಖ್ಯ ಉದ್ದೇಶ:

"ಸ್ತ್ರೀಯರ ಗರ್ಭಧಾರಣೆಯ ಪ್ರಾರಂಭಿಕ ದಿನಗಳಲ್ಲಿ ಹೋಮೋಸಿಸ್ಟೈನ್ ಮತ್ತು ಎಡಿಎಮ್ಎ ಪ್ರಮಾಣಗಳು ಹೆಚ್ಚುವುದರಿಂದ ತಾಯಂದಿರು ಅಧಿಕ ರಕ್ತದೊತ್ತಡದ ಕಾಯಿಲೆಗಳು, ಆರಂಭಿಕ ಹೊಕ್ಕಳುಬಳ್ಳಿಯ ಬೆರ್ಪಡಿಕೆ, ಗರ್ಭಪಾತ, ಭ್ರೂಣದ ಮೇಲೆ ಕಡಿಮೆ ತೂಕದಂತಹ ಗರ್ಭಾವಸ್ಥೆಯ ಪ್ರತಿಕೂಲ ಪರಿಣಾಮಗಳನ್ನು ಎದುರಿಸಬೇಕಾಬಹದು ಎಂದು ಅನೇಕ ಅಧ್ಯಯನಗಳಂದ ತಿಳದು ಬರುತ್ತದೆ. ಆದರೆ ಈ ಭಾಗದ ಜನರಲ್ಲಿ ಇಂತಹ ಯಾವುದೇ ಅಧ್ಯಯನವನ್ನು ಕೈಕೊಳ್ಳಲಾಗಿರುವುದಿಲ್ಲ. ಆದ್ದರಿಂದ ಈ ಅಧ್ಯಯನದಿಂದ "ಸ್ತ್ರೀಯರ ಗರ್ಭಧಾರಣೆಯ ಪ್ರಾರಂಭಿಕ ದಿನಗಳಲ್ಲಿ ಹೋಮೋಸಿಸ್ಟೈನ್ ಮತ್ತು ಎಡಿಎಮ್ಎ ಪ್ರಮಾಣಗಳು ಹಾಗೂ ಗರ್ಭಧಾರಣೆಯ ಫಲಿತಾಂಶಗಳ ನಡುವೆ ಇರುವ ಸಂಬಂಧವನ್ನು ತಿಳದುಕೊಳ್ಳಬಹುದು.

ವೆಚ್ಚಗಳು ಮತ್ತು ಆರ್ಥಿಕ ಪ್ರಯೋಜನಗಳು:

ನೀವು ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವುದಕ್ಕಾಗಿ ನೀವು ಯಾವುದೇ ವೆಚ್ಚವನ್ನು ಭರಿಸಬೇಕಾಗಿಲ್ಲ ಮತ್ತು ನಿಮಗೆ ಯಾವುದೇ ಆರ್ಥಿಕ ಪ್ರೋತ್ಸಾಹಧನಗಳನ್ನು ಕೊಡಲಾಗುವುದಿಲ್ಲ.

ನಾನು ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವುದರಿಂದ ನನ್ನ ಮೇಲೆ ಆಗುವ ಪರಿಣಾಮಗಳೇನು?

ನೀವು ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಲು ಈ "ಮಾಹತಿಯುಕ್ತ ಒಪ್ಪಿಗೆ" ಪತ್ರಕ್ಕೆ ಸಹಿ ಮಾಡಿದ ನಂತರ, ಪ್ರಸೂತಿ ತನಿಖೆಗಾಗಿ ರಕ್ತ ಸಂಗ್ರಹಿಸುವ ವೇಳೆಯಲ್ಲಿ ನಿಮ್ಮಿಂದ ೩ ಎಮ್.ಎಲ್. ರಕ್ತವನ್ನು ತೆಗೆದುಕೊಳ್ಳಲಾಗುವುದು. ಪ್ರಯೋಗಾಲಯದಲ್ಲಿ ರಕ್ತದ ಮಾದರಿಗಳನ್ನು ಸಂಸ್ಕರಿಸಿ ಅದರಿಂದ ಹೋಮೋಸಿಸ್ಟೈನ್ ಮತ್ತು ಎಡಿಎಮ್ಎ ಪ್ರಮಾಣಗಳನ್ನು ಅಳತೆ ಮಾಡಿ ದಾಖಲಿಸಲಾಗುವುದು ಮತ್ತು ಗರ್ಭಧಾರಣೆಯ ಫಲಿತಾಂಶದವರೆಗೆ ಅನುಸರಿಸಲಾಗುವುದು.

ಸಂಶೋಧಕರು ನಿಮ್ಮ ಕೆಲವು ವೈಯಕ್ತಿಕ ಮಾಹಿತಿ ಮತ್ತು ವಿವರವಾದ ವೈದ್ಯಕೀಯ ಇತಿಹಾಸಗಳನ್ನು ಸಹ ತೆಗೆದುಕೊಳ್ಳುವರು. ಈ ಅಧ್ಯಯನದ ಮಾಹಿತಿಯನ್ನು ನಿಮ್ಮ ವೈದ್ಯಕೀಯ ದಾಖಲೆಗಳಿಂದ ನಿಗದಿತ ನಮೂನೆಗೆ ಲಿಪ್ಯಂತರಗೊಳಿಸಲಾಗುವುದು.

ಅಪಾಯ ಮತ್ತು ಪ್ರಯೋಜನಗಳು:

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವುದರಿಂದ ನಿಮಗೆ ಯಾವುದೇ ಗಮನೀಯ ಅಪಾಯಗಳು ಅಥವಾ ಪ್ರಯೋಜನಗಳು ಇರುವುದಿಲ್ಲ.

ಈ ಅಧ್ಯಯನಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ನಿಮ್ಮಲ್ಲಿ ಯಾವುದಾದರೂ ಪ್ರಶ್ನೆಗಳಿದ್ದಲ್ಲಿ:

ಈ ಅಧ್ಯಯನಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಅಥವಾ ಅಧ್ಯಯನಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಯಾವುದೇ ಗಾಯ ಅಥವಾ ಕಾಯಿಲೆಗಳ ಬಗ್ಗೆ ನೀವು ಯಾವುದೇ ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳಬೇಕಾಗಿದ್ದರೆ, ನೀವು ಡಾ॥ , ಪ್ರಸೂತಿ ಮತ್ತು ಸ್ತ್ರೀರೋಗ ಶಾಸ್ತ್ರ ವಿಭಾಗ, ಕೆ.ಎಲ್.ಇ. ವಿಶ್ವವಿದ್ಯಾಲಯ ಜೆ.ಎನ್. ಮೆಡಿಕಲ್ ಕಾಲೇಜು, ಬೆಳಗಾವಿ ಫೋನ್: ಅಥವಾ ಮೊಬೈಲ ನಂ.: , ಅಥವಾ ಡಾ॥ ಡಾ॥ ಪ್ರಾಧ್ಯಾಪಕರು, ಸ್ತ್ರೀರೋಗ ಶಾಸ್ತ್ರ ವಿಭಾಗ, ಕೆ.ಎಲ್.ಇ.ಎಸ್. ವಿಶ್ವವಿದ್ಯಾಲಯ, ಜೆ.ಎನ್. ಮೆಡಿಕಲ್ ಕಾಲೇಜು, ಬೆಳಗಾವಿ ಫೋನ್: ಅಥವಾ ಮೊಬೈಲ ನಂ.: , ಇವರನ್ನು ಸಂಪರ್ಕಿಸಬಹುದು,

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಪ್ರಯೋಗಾರ್ಥಿಯಾಗಿ ನಿಮ್ಮ ಹಕ್ಕುಗಳ ಬಗ್ಗೆ ಯಾವುದೇ ಪ್ರಶ್ನೆಗಳಿದ್ದರೆ, ನೀವು ಡಾ॥ ಗಂಗಾ ಪಿಳ್ಳೈ, ಪ್ರಾಧ್ಯಾಪಕರು ಮತ್ತು ಪೆಥಾಲಾಜಿ ವಿಭಾಗದ ಮುಖ್ಯಸ್ಥರು, ಚೇರಮನ್ ಜೆ.ಎನ್. ಮೆಡಿಕಲ್ ಕಾಲೇಜ್ ಇನ್ಸಸ್ಟಿಟ್ಯೂಷನಲ್ ಎಥಿಕ್ಸ್ ಕಮೀಟಿ ಆನ್ ಹ್ಯುಮನ್ ಸಬ್ಜೆಕ್ಟ್ಸ್ ರಿಸರ್ಚ್, ಫೋನ್: 0831-2473777 ಎಕ್ಸಟೆನ್ಷನ್: 1527 ಅಥವಾ ಮೊಬೈಲ ನಂ.: 9480275601, ಮೂಲಕ ಸಂಪರ್ಕಿಸಬಹುದು.

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವಿಕೆಯಿಂದ ನಿರ್ಗಮಿಸುವುದರಿಂದ ಆಗುವ ಪರಿಣಾಮಗಳೇನು?:

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವುದು ಸಂಪೂರ್ಣ ವೈಯಕ್ತಿಕವಾಗಿರುತ್ತದೆ. ಮತ್ತು ನೀವು ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಿ ಕೆಲ ಸಮಯದ ನಂತರ ಇದರಿಂದ ನಿರ್ಗಮಿಸಲು ಬಯಸಿದರೆ ಹಾಗೆ ಮಾಡಲು ಅವರು ಸರ್ವ ಸ್ವತಂತ್ರರಾಗಿರುತ್ತೀರಿ. ನೀವು ಈ ಅಧ್ಯಯನದಿಂದ ಹಿಂದೆ ಸರಿಯುವದರಿಂದಾಗಿ ನಿಮ್ಮ ಮುಂದಿನ ವೈದ್ಯಕೀಯ ಉಪಚಾರದ ಮೇಲೆ ಯಾವುದೇ ಪರಿಣಾಮ ಉಂಟಾಗುವುದಿಲ್ಲ. ಸಂಶೋಧಕರು ಈ ಅಧ್ಯಯನದಲ್ಲಿ ನಿಮ್ಮ ಭಾಗವಹಿಸುವಿಕೆಯನ್ನು ಯಾವುದೇ ವೇಳೆಯಲ್ಲಿ ರದ್ದುಗೊಳಿಸುವ ಅಧಿಕಾರ ಹೊಂದಿರುತ್ತಾರೆ. ಉದಾ: ಭಾಗವಹಿಸುವವರ ಆಯ್ಕೆಯು ಅಸಮರ್ಪಕವಾಗಿದೆ.

ನೀವು ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವುದನ್ನು ಗೌಪ್ಯವಾಗಿಡಲಾಗುದೇ? ನಿಮ್ಮ ವೈಯಕ್ತಿಕ ಮಾಹಿತಿಯನ್ನು ಹೇಗೆ ಉಪಯೋಗಿಸಲಾಗುವುದು?

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವವರ ವೈಯಕ್ತಿಕ ವಿವರಗಳನ್ನು ಬಹಿರಂಗಗೊಳಿಸುವುದಿಲ್ಲ. ಸಂಗ್ರಹಿಸಲಾದ ಎಲ್ಲ ಮಾಹಿತಿಗಳನ್ನು ಗೌಪ್ಯವಾಗಿಡಲಾಗುವುದು ಹಾಗೂ ಇದರಿಂದ ನಿಮ್ಮ ವೈಯಕ್ತಿಕ ವಿವರಗಳು ಯಾರಿಗೂ ತಿಳಿಯುವುದಿಲ್ಲ. ನಿಮ್ಮ ವೈದ್ಯಕೀಯ ಕಡತಗಳಿಂದ ನಿಮ್ಮ ಯಾವುದೇ ವೈಯಕ್ತಿಕ ಮಾಹಿತಿಯನ್ನು ಬಹಿರಂಗಗೊಳಿಸದೇ (ಅಧ್ಯಯನದ ವೈದ್ಯರ ಕಾರ್ಯಾಲಯದಲ್ಲಿ) ಕೇವಲ ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ನಿಮ್ಮ ಮಾಹಿತಿ ಹಾಗೂ ಪರಿಣಾಮಗಳನ್ನು ಪರಿಶೀಲಿಸಲಾಗುವುದು. ನೀವು ಈ ಒಪ್ಪಿಗೆ ಪತ್ರಕ್ಕೆ ಸಹಿ ಹಾಕುವುದರಿಂದ ನಿಮ್ಮ ವೈಯಕ್ತಿಕ ಮಾಹಿತಿಯನ್ನು ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಒಳಗೊಳ್ಳುವ ಸಂಶೋಧಕ ತಂಡಕ್ಕೆ ಮಾತ್ರ ವರ್ಗಾಯಿಸಲಾಗುವುದು.

ನೀವು ಈ ಮಾಹಿತಿಯನ್ನು ತಿಳಿದುಕೊಂಡು ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವುದಕ್ಕೆ ಒಪ್ಪಿಕೊಂಡಿದ್ದಕ್ಕೆ ಧನ್ಯವಾದಗಳು.

ಈ ಸಂಶೋಧಯಲ್ಲಿ ಭಾಗವಹಿಸಲು ಒಪ್ಪಿಗೆ ಪತ್ರ

ಅಧ್ಯಯನದ ಶೀರ್ಷಿಕೆ: "ಸ್ತ್ರೀಯರ ಗರ್ಭಧಾರಣೆಯ ಪ್ರಾರಂಭಿಕ ದಿನಗಳಲ್ಲಿ ಹೋಮೋಸಿಸ್ಟೈನ್ ಮತ್ತು ಅಸಿಮೆಟ್ರಿಕ್ ಡೈಮಿಥೈಲಾರ್ಜನೈನ್ (ಎಡಿಎಮ್ಎ) ಗಳ ಪ್ರಮಾಣ ಮತ್ತು ಗರ್ಭಧಾರಣೆಯ ಫಲಿತಾಂಶಗಳು" – ಕೆ.ಎಲ್.ಇ. ವಿಶ್ವವಿದ್ಯಾಲಯದ ಜೆ.ಎನ್. ಮೆಡಿಕಲ್ ಕಾಲೇಜು, ಬೆಳಗಾವಿಯ ತರಬೇತಿ ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ಮಾಡಿದ ಒಂದು ವಿವರಣಾತ್ಮಕ ಸವೇಕ್ಷಣದ ಅಧ್ಯಯನ"

ಭಾಗವಹಿಸುವವರ ಹೆಸರು: _____

ದಯವಿಟ್ಟು ಚೌಕದಲ್ಲಿ ಚಿಕ್ಕ ಸಹಿಯನ್ನು ಮಾಡಿರಿ

1) ನಾನು ಒಪ್ಪಿಗೆ ಪತ್ರದಲ್ಲಿ ಕೊಟ್ಟಿರುವ ಅಧ್ಯಯನಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ಎಲ್ಲ ಮಾಹಿತಿಯನ್ನು ಪೂರ್ಣವಾಗಿ ತಿಳಿದುಕೊಂಡಿರುತ್ತೇನೆ ಮತ್ತು ಈ ಸಂಬಂಧದಲ್ಲಿ ಯಾವುದೇ ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳಲು ಅವಕಾಶ ಕೊಡಲಾಗಿತ್ತು. ☐

2) ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವುದು ಸಂಪೂರ್ಣ ಸ್ವಯಂಪ್ರೇರಿತವಾಗಿದೆ. ಮತ್ತು ನಾನು ಯಾವುದೇ ವೇಳೆಯಲ್ಲಿ ಯಾವುದೇ ಕಾರಣ ಕೊಡದೇ ಈ ಅಧ್ಯಯನದಿಂದ ನಿರ್ಗಮಿಸಲು ಸ್ವತಂತ್ರರಾಗಿರುತ್ತೇನೆ ಹಾಗೂ ಮುಂದಿನ ವೈದ್ಯಕೀಯ ಉಪಚಾರದ ಮೇಲೆ ಯಾವುದೇ ಪರಿಣಾಮ ಉಂಟಾಗುವುದಿಲ್ಲ. ☐

3) ಈ ವೈದ್ಯಕೀಯ ಪ್ರಯೋಗದ ಪ್ರಾಯೋಜಕರು ಅಥವಾ ಅವರ ಪರವಾಗಿ ಕೆಲಸ ಮಾಡುವವರು, ಎಥಿಕ್ಸ್ ಕಮೀಟಿ ಮತ್ತು ನಿಯಂತ್ರಣಾಧಿಕಾರಿಗಳು ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಅಥವಾ ಇದಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಮುಂದಿನ ಯಾವುದೇ ಸಂಶೋಧನೆಯಲ್ಲಿ ಉಪಯೋಗಿಸಲಾಗುವ ನನ್ನ ಆರೋಗ್ಯದ ದಾಖಲೆಗಳನ್ನು ನೋಡಲು ನನ್ನ ಅನುಮತಿ ಪಡೆಯುವ ಅವಶ್ಯಕತೆ ಇರುವದಿಲ್ಲ. ಹಾಗೂ ನಾನು ಈ ಅಧ್ಯಯನದಿಂದ ನಿರ್ಗಮಿಸಿದರೂ ಕೂಡ ಅವರು ನನ್ನ ಮಾಹಿತಿಯನ್ನು ತಮ್ಮ ಸಂಶೋಧನೆಯಲ್ಲಿ ಉಪಯೋಗಿಸಲು ನನ್ನ ಒಪ್ಪಿಗೆ ಇದೆ. ಆದಾಗ್ಯೂ ನನ್ನ ಗುರುತನ್ನು ವೈಯಕ್ತಿಕ ಮಾಹಿತಿಯನ್ನು ಗೌಪ್ಯವಾಗಿಡಲಾಗುವುದು ಮತ್ತು ಬೇರೆಯವರಿಗೆ ತಿಳಿಯಗೊಡಿವದಿಲ್ಲ ಮತ್ತು ಪ್ರಕಟಿಸಲಾಗುವುದಿಲ್ಲ. ☐

4) ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಉಪಯೋಗಿಸಲಾದ ಮಾಹಿತಿ ಮತ್ತು ಅಧ್ಯಯನದ ಪರಿಣಾಮಗಳನ್ನು ಕೇವಲ ವೈಜ್ಞಾನಿಕ ಉದ್ದೇಶಗಳಿಗೆ ಉಪಯೋಗಿಸಲು ಒಪ್ಪಿಕೊಂಡಿರುತ್ತೇನೆ. ☐

5) ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಲು ನಾನು ಒಪ್ಪಿಕೊಂಡಿರುತ್ತೇನೆ. ☐

ಭಾಗವಹಿಸುವವರ/ರೋಗಿಯ ಹೆಸರು: _____

ಭಾಗವಹಿಸುವವರ ಸಹಿ (ಅಥವಾ ಹೆಬ್ಬೆರಳಿನ ಗುರುತು): _____

ದಿನಾಂಕ: ☐☐ ☐☐ ☐☐☐☐
ದಿನಾಂಕ ತಿಂಗಳು ವರ್ಷ

ಮಾಹಿತಿಯುಕ್ತ ಒಪ್ಪಿಗೆಯನ್ನು ಪಡೆದುಕೊಂಡವರ ಹೆಸರು: _____

ದಿನಾಂಕ: ☐☐ ☐☐ ☐☐☐☐
ದಿನಾಂಕ ತಿಂಗಳು ವರ್ಷ

(ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವವರು/ರೋಗಿಯು ಓದಲು ಮತ್ತು ಬರೆಯಲು ಸೀಮಿತ ಸಾಮರ್ಥ್ಯ ಹೊಂದಿದ್ದಲ್ಲಿ, ಅವರೊಂದಿಗೆ ಈ ವಿಷಯವನ್ನು ಚರ್ಚಿಸುವಾಗ ಭಾಗವಹಿಸುವವರು ಒಪ್ಪಿಕೊಂಡ ಕಾನೂನುಬದ್ಧ ನಿಷ್ಪಕ್ಷಪಾತ ಪ್ರತಿನಿಧಿಯು ಹಾಜರಿದ್ದು, ಭಾಗವಹಿಸುವವರ ಪರವಾಗಿ ಒಪ್ಪಿಗೆ ಪತ್ರಕ್ಕೆ ಸಹಿ ಹಾಕಬೇಕು). ಇಂತಹ ಸಂದರ್ಭಗಳಲ್ಲಿ ಭಾಗವಹಿಸುವವರ/ರೋಗಿಯ (ಸಹಿಯ ಬದಲಿಗೆ) ಹೆಬ್ಬೆರಳಿನ ಗುರುತನ್ನು ಪಡೆದುಕೊಳ್ಳಬೇಕು.

ಭಾಗವಹಿಸುವವರು ಒಪ್ಪಿಕೊಂಡ ಕಾನೂನುಬದ್ಧ ಪ್ರತಿನಿಧಿಯ ಹೇಳಿಕೆ: ಅನ್ವಯಿಸುವುದಿಲ್ಲ. ☐

ಈ ಕೆಳಗೆ ಸಹಿ ಮಾಡಿದ ನಾನು ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸುವವರ ಕಾನೂನುಬದ್ಧ ಪ್ರತಿನಿಧಿಯಾಗಿದ್ದು, ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಲು ಮಾಹಿತಿ ಕೊಡುವ ಚರ್ಚೆಯಲ್ಲಿ ಹಾಜರಿದ್ದು, ಈ ಸಂಶೋಧನೆಯ ವಿಧಾನವನ್ನು ಮತ್ತು ಸಂಪೂರ್ಣ ಮಾಹಿತಿಯನ್ನು ತಿಳಿದುಕೊಂಡಿರುತ್ತೇನೆ. ಮತ್ತು ಸದರಿ ಚರ್ಚೆಯಲ್ಲಿ ಈ ಸಂಶೋಧನೆಯ ಬಗ್ಗೆ ರೋಗಿಯ ಮತ್ತು ಭಾಗವಹಿಸುವಿಕೆಯ ಬಗ್ಗೆ ನಾನು ಕೇಳಿದ ಎಲ್ಲ ಪ್ರಶ್ನೆಗಳಿಗೆ ಸಮರ್ಪಕವಾದ ಉತ್ತರಗಳನ್ನು ಪಡೆದಿರುತ್ತೇನೆ. ಮತ್ತು ಈ ಅಧ್ಯಯನಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ಎಲ್ಲ ಅಂಶಗಳನ್ನು ಈ ಒಪ್ಪಿಗೆ ಪ್ರಕ್ರಿಯೆಯಲ್ಲಿ ಸ್ಪಷ್ಟವಾಗಿ ಪ್ರಸ್ತುತಪಡಿಸಲಾಗಿದೆ. ರೋಗಿಯು ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಲು ಇಚ್ಛಿಸುತ್ತಾರೆ ಮತ್ತು ಅವನ ಪರವಾಗಿ ನಾನು ಈ ಒಪ್ಪಿಗೆ ಪತ್ರಕ್ಕೆ ಸಹಿ ಹಾಕಿರುತ್ತೇನೆ.

ಭಾಗವಹಿಸುವವರ/ರೋಗಿಯ ಹೆಸರು: _____

ಭಾಗವಹಿಸುವವರ ಕಾನೂನು ಬದ್ಧ ಪ್ರತಿನಿಧಿಯ ಹೆಸರು: _____

ಭಾಗವಹಿಸುವವರೊಂದಿಗೆ ಸಂಬಂಧ: _____

ಭಾಗವಹಿಸುವವರ ಕಾನೂನು ಬದ್ಧ ಪ್ರತಿನಿಧಿಯ ಸಹಿ: _____

ದಿನಾಂಕ: ☐☐ ☐☐ ☐☐☐☐
ದಿನಾಂಕ ತಿಂಗಳು ವರ್ಷ

ಭಾಗವಹಿಸುವವರು ಒಪ್ಪಿಕೊಂಡ ನಿಷ್ಪಕ್ಷಪಾತ ಸಾಕ್ಷಿಯ ಘೋಷಣೆ: ಅನ್ವಯಿಸುವದಿಲ್ಲ. ☐

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ನಡೆಸಲಾಗುವ ಸಂಶೋಧನೆಯ ವಿಧಾನವನ್ನು ಮತ್ತು ಸಂಪೂರ್ಣ ಮಾಹಿತಿಯನ್ನು ಸ್ಪಷ್ಟವಾಗಿ ವಿವರಿಸಲಾಗಿದ್ದು ಅವುಗಳನ್ನು ಭಾಗವಹಿಸುವವರು/ರೋಗಿಯು ಮತ್ತು ಭಾಗವಹಿಸುವವರ ಕಾನೂನುಬದ್ಧ ಪ್ರತಿನಿಧಿಯವರು ತಿಳಿದುಕೊಂಡಿರುತ್ತಾರೆ ಮತ್ತು ಈ ಒಪ್ಪಿಗೆಯನ್ನು ಭಾಗವಹಿಸುವವರು/ರೋಗಿಯು ಸ್ವಸಂತೋಷದಿಂದ ಕೊಟ್ಟಿರುತ್ತಾರೆ ಎಂದು ಧೃಡೀಕರಿಸುತ್ತೇನೆ ಮತ್ತು ಈ ಒಪ್ಪಿಗೆ ಪತ್ರಕ್ಕೆ ಸಹಿ ಹಾಕಿರುತ್ತೇನೆ.

ನಿಷ್ಪಕ್ಷಪಾತ ಸಾಕ್ಷಿಯ ಹೆಸರು: _____

ನಿಷ್ಪಕ್ಷಪಾತ ಸಾಕ್ಷಿಯ ಸಹಿ: _____

ದಿನಾಂಕ: ☐☐ ☐☐ ☐☐☐☐

ದಿನಾಂಕ ತಿಂಗಳು ವರ್ಷ

संशोधन अभ्यासामध्ये भाग घेण्यासंबंधी दिलेली सहमती

अभ्यासासबंधी माहिती : -

होमोसायस्टिन व असिमेट्रीक डायमिथॉईल अर्जिनाईन याची प्राथमिक गर्भावस्था असतानाची मात्रा आणि गर्भावस्थामध्ये त्यांची उत्पत्ती यासंबंधी के. एल. ई. युनिव्हसिटी. जे. एन. मेडिकल कॉलेज बेळगावी येथे यासंबंधी परिक्षण करुन निर्माण झालेले निष्कर्ष.

प्रस्तावना :

तुम्हास वरील वैद्यकिय संशोधन अभ्यासामध्ये सहभागी होण्याकरिता आम्ही आमंत्रित करित आहोत. तुम्ही या संबंधी निर्णय घेत असताना, तुमचा या संशोधनात कशा प्रकारे सहयोग घेतला जाणार आहे हे सांगणार आहे. तसेच या अभ्यासाचा उपयोग पुढे कशा प्रकारे होणार आहे हे तुम्हास समजावण्यासाठी तसेच या अभ्यासाची पध्दती, फायदे व धोके आणि कोणत्या खबरदाऱ्या घेतल्या जाणार आहेत हे तुम्हास तुमच्या निर्णयापुर्वी सांगत आहोत. या पध्दती सबंधी तुम्ही जाणकार झाल्यानंतर तुमची सहमती घ्यावयाची आहे यासाठी तुम्ही खालील माहिती काळजीपुर्वक वाचावी व इतरांशी संवाद साधुन या संशोधनामध्ये भाग घेण्यासंबंधीचा निर्णय घ्यावा.

या अभ्यासाव्दारे कोणतीही मदत तुम्हास भविष्यात होईल हे सांगता येत नाही. परंतु या अभ्यासामध्ये आम्हांस भविष्यात तुमच्यासारख्या अशा उपचार घेणाऱ्या व्यक्तीस औषधोपचार करण्यास मदत होईल.

तुम्ही जर या अभ्यासामध्ये सहभागी होण्या सहमती दिला तर तुमच्याकडुन ही माहिती प्राप्त झाल्या सबधींचा एक नमुना सही करुन घेतला जाईल.

या संशोधन अभ्यासाचा काय उपयोग / उदिष्ट आहे. :-

या अभ्यासामुळे गर्भाअवस्थेतील स्त्रियामध्ये होमोसायस्टिन व ए. डी. एम. ए ची मात्रा प्राथमिक गर्भावस्थेत किती आहे. व त्यांची मात्रा कमी किंवा जास्त झाल्यास गर्भावस्थेमध्ये कोणते विपरित / प्रतिकुल परिणाम होतात व तसेच गर्भावस्थेत जास्त रक्तदाब होणे, वारीचे (झश्ररलशर्पीर) प्राथमिक गर्भावस्तेत अलग होणे, गर्भपात, आणि गर्भातील मुलाचे वजन कमी असणे या संबंधी आम्हास समजु शकते. या संबंधी या लोकवस्तीच्या भागामध्ये कोणतेही संशोधन व अभ्यास अजुन झालेले नाही आहे. त्यामुळे या अभ्यासाद्वारे होमोसायस्टिन व ए. डी. एम. ए ची मात्रा किती पाहिजे किती प्राथमिक गर्भावस्थेत पाहिजे व त्याचे प्रतिकुल / विपरीत परिणाम काय होतात हे समजुन येईल.

खर्च व मोबदला :

वरील अभ्यास परिक्षण करण्यासाठी तुम्हास कोणताही खर्च करावा लागणार नाही. या संशोधन अभ्यासामध्ये भाग घेतल्यास तुम्हास कोणताही मोबदला मिळणार नाही.

मी अभ्यासामध्ये जर सामिल झालो तर काय होईल ?

तुम्हास वरील माहिती मिळाल्यानंतर व तुमची माहिती झाल्या संबंधी सही घेतल्यानंतर तुमचे तीन मिलीलिटर रक्त तुमच्या शरीरातुन घेतले जाईल व ते प्रसुति संशोधनासाठी तपासले जाईल. रक्त घेतल्यानंतर त्यावर प्रक्रिया करुन होमोसायस्टिन व ए. डी. एम. ए ही मात्रा किती आहे. याचा अभ्यास लॅबोटरीमध्ये केला जाईल व अशा मात्रांची नोंद गर्भावस्थेमध्ये प्रसुती होई पर्यंत वेळोवेळी केली जाईल. संशोधक हे तुमच्यासंबंधीची व्ययक्तिक माहिती घेतील व ते तुमच्या आरोग्य संबंधीची माहिती गोळा करतील. हा सर्व अभ्यास केलेला भाग नंतर वैद्यकिय दृष्टीकोनातून वर्गीकृत केला जाईल. व त्या व्दारे निष्कर्ष काढले जातील.

धोके व फायदे : -

या अभ्यासाव्दारे कोणतेही धोके व फायदे तुम्हास होणार नाहीत.

तुमचे प्रश्न :

या संशोधन अभ्यासाक्रमा संबंधी तुमचे काही प्रश्न असल्यास तुम्ही डॉ. , स्त्रियांचे रोग व

प्रसुति शास्त्र विभाग के. एल. ई , युनिव्हसिटी . जे. एन. मेडिकल कॉलेज , फोन नं. , व मो. नं. , किंवा डॉ. , स्त्रयांचे रोग व प्रसुति शास्त्र विभाग के. एल. ई, युनिव्हसिटी . जे. एन. मेडिकल कॉलेज , फोन नं. मो. नं. , यांच्याशी संपर्क साधुन शकता.

तुमच्या कांही तुमच्या अधिकारासंबंधी शंका असल्यास या संबंधी तुम्ही डॉ. गंगा पिली, प्रोफेसर व पॅथॉलॉजी विभाग प्रमुख, ज्या जे. एन. मेडिकल कॉलेज, इथिक्स कमिटी व मानवीय अधिकार संस्था संबंधीच्या चेअरमन आहेत व यांचा फोन नं. ०८३१-२४७३७७७, इक्टेंशन १५२७ व मोबाईल फोन नं. ९४८०२७५६०१ असा आहे, त्यांच्याशी शंका समाधान संबंधी संपर्क साधु शकता.

तुम्हास या अभ्यासामध्ये पुढे सहभागी व्हावयाचे नसल्यास कोणते परिणाम होतील ?

तुमचा या संशोधन अभ्यासामध्ये सहभाग हा स्वयंम घोषीत आहे. तुम्ही या अभ्यास संशोधनात सहभागी होण्यास नाकारु शकता किंवा या मधुन तुमचे नांव तुम्ही कमी करु शकता यामुळे तुम्हास कोणतीही शिक्षा किंवा कोणतेही नुकसान होणार नाही. तुम्ही तुमचे नांव या संशोधनातुन कादुन घेतल्यामुळे तुम्हास पुढे ओषधोपचार करुन घेण्यास अडचण होणार नाही. संशोधक हे हा अभ्यास उपक्रम जर या सबंधीचे सहभाग होणाऱ्या व्यक्ती कमी प्रमाणात असतील तर हा कार्यक्रम कोणत्याही वेळी सोडुन देवु शकता.

तुम्ही या अभ्यासक्रमात साहभागी झालेले गुप्त ठेवण्यात येईल काय ? तुम्ही दिलेली तुमची व्यक्तीगत माहिती कशा प्रकारे उपयोगात आणली जाईल ? :-

जी काही तुमच्याकडुन संशोधनासाठी माहिती घेतली आहे ती गुप्त राहील. तुमच्यासाठी जे मेडिकल फाईल तयार केले जाईल ते फक्त दवाखान्यामध्ये किंवा डॉटरांच्या ऑफीसमध्येच पाहिले जाईल व त्यासंबंधीची माहिती व निष्कर्ष हे गुप्त राखले जातील व ते कुणासही सांगितले जाणार नाहीत.

हा सहमती होण्या संबंधीचा नमुना तुम्ही सही केल्यानंतर, तुमची परवानगी घेतल्याप्रमाणे तो तुमच्या व्यक्तीगत माहितीमध्ये ठेवला जाईल व त्याची माहिती फक्त वरील व्यक्तीना अभ्यास संशोधन करण्यासाठी म्हणुन वापरला जाईल.

वरील सर्व तुम्ही वाचुन आणि विचार करुन तुम्ही या संशोधनामध्ये सामिल झाल्या बद्दल तुमचे आम्ही आभार व्यक्त करतो.

अभ्यासक्रमामध्ये सहभागी होण्यासाठी दिलेली सम्मती

अभ्यासासबंधी माहिती : -

होमोसायस्टिन व असिमेट्रीक डायमिथॉईल अर्जिनाईन याची प्राथमिक गर्भावस्था असतानाची मात्रा आणि गर्भावस्थामध्ये त्यांची उत्पत्ती यासंबंधी के. एल. ई. युनिव्हसिटी. जे. एन. मेडिकल कॉलेज बेळगावी येथे यासंबंधी परिक्षण करुन निर्माण झालेले निष्कर्ष.

सहभागी होणाऱ्याचे नांव : _____

बॉक्समध्ये संक्षिप्त सही करण्याची विनंती

i) मी असे सांगु इच्छितो कि, मी वरील संशोधना सबंधीत माहितीपत्रक वाचले असुन ते पुर्णत: समजावुन घेतले आहे आणि मला या सबंधी कोणतेही प्रश्न विचारण्याचा अधिकार मिळाला आहे. ☐

ii) मला हे समजुन चुकले आहे कि माझा या संशोधन अभ्यास क्रमामध्ये सहभाग माझ्या इच्छेनुसार आहे व या कार्यक्रमामधुन मला जर का वाटले तर कोणत्याही वेळी मुक्ती मिळु शकते. या सबंधी मला कोणतेही कारण देण्याची जरुरी नाही व त्यामुळे मला येथे औषधोपचार घेण्याच्या प्रक्रियेवर परिणाम होणार नाही तसेच माझ्या कोणत्याही अधिकारावर यामुळे परिणाम होणार नाही. ☐

iii) मी या अभ्यासक्रमातुन माझे नांव कमी केले तरी सुध्दा हा अभ्यासक्रम कोणी जाहिर केला आहे किंवा त्यांच्या तर्फे कोणी हा अभ्यासक्रम करणार आहेत, तसेच इथिक्स कमिटी आणि या सबंधीतले अधिकारी यांना माझे आरोग्य सबंधी सध्या प्राप्त झालेले रेकार्ड तसेच पुढे संशोधन करण्यासाठी तयार केलेले रेकॉर्ड हे या संशोधन कार्यक्रमात उपयोगात आणू शकतात. तसेच या अभ्यासक्रमामध्ये मी सहभागी झाले आहे हे वरिल अधिकारी गुप्त राखतील व माझी या सबंधीची माहिती हे कोणत्याही अन्य व्यक्तिस देणार नाहीत किंवा माझ्या विषयी कोणालाही सांगणार नाहीत.

iv) मी या अभ्यासक्रमातुन प्राप्त झालेले निष्कर्ष हे वेद्यकिय शास्त्राची पुढे प्रगति करण्यासाठी उपयोगात आणतील व त्या संबंधी माझे कोणतेही त्यांच्यावर बंधन राहणार नाही. ☐

v) मी वरील संशोधन अभ्यास क्रमामध्ये सहभागी होण्याचे सहमती देत आहे. ☐

सहभागी होणाऱ्याचे नांव : _____

सहभागी होणाऱ्याची सही किंवा डाव्या हाताचा अंगठा _____

तारीख : ☐☐ – ☐☐ – ☐☐☐☐

ज्या व्यक्तिने ही सहमती प्राप्त केली त्याचे नांव :_____

ज्या व्यक्तिने ही सहमती प्राप्त केली त्याचे अंगठा: _____

जर का रुग्णाला वाचता किंवा लिहता येत नसेल तर निष्पक्ष साक्षिदार हा या माहिती पत्रिकाच्या सहमती सबंधी तिच्याशी चर्चा करुन या रुग्णाची सहमती प्राप्त करु शकतो. अशा परिस्थितीमध्ये रुग्णाची सही किंवा डाव्या हाताच्या अंगठ्याच्या जागी निष्पक्ष साक्षिदाराची सही घेण्यात येईल.

रुग्णाचे कायद्यानुसार या सबंधी त्याच्या तर्फे सही करणाऱ्याचे पत्रक :- लागू नाही. ☐

मी जो वरील रुग्णाशी चर्चा केलेले संवाद साधला आहे त्याने रुग्णाला सहमती पध्दतीच्या विषयी पुर्णत: तसेच संशोधन अभ्यासक्रमाच्या सबंधी पुर्णत: समजावुन सांगितलेले आहे. या संशोधनासबंधी प्रश्न तसेच रुग्णाच्या यामधील भाग हा मी रुग्णाला समजावुन सांगितला आहे. मी असे जाहिर करु इच्छीतो की, या अभ्यासक्रमातील सहमती सबंधी मी रुग्णाला अवगत केले आहे व रुग्णाने या कार्यक्रमामध्ये सहभागी होण्यासाठी म्हणुन आपली इच्छाव सहमती जाहीर केलेली आहे. व त्यानंतर मी या संबंधीत नमुना फार्म वर हस्ताक्षर करीत आहे.

रुग्णाचे नांव :- _____

कायद्यानुसार प्रतिनिधित्व करणाऱ्याचे नांव : _____

रुग्णाचे त्याच्याशी नाते : _____

कायद्यानुसार प्रतिनिधित्व करणाऱ्याचे सही :- _____

तारीख : ☐☐ – ☐☐ – ☐☐☐☐

रुग्णाला माहिती दिल्यानंतर सहमती प्राप्त करणाऱ्या निष्पक्ष साक्षिदाराचे प्रमाण पत्र :- लागू नाही. ☐

मी खाली सही करणार असे जाहिर करी इच्छितो कि मी वरील माहिती ही रुग्णाला तसेच कायद्यानुसार त्याचे प्रतिनिधित्व करणाऱ्या व्यक्तिला पुर्णत: समजावुन सांगितली आहे. व रुग्णाने या सबंधी सहभागी होण्याची सहमती आपल्या इच्छेनुसार दिली आहे.

निष्पक्ष साक्षिदाराचे नांव :- _____

निष्पक्ष साक्षिदाराची सही :- _____

तारीख :- ☐☐ – ☐☐ – ☐☐☐☐

संशोधन अभ्यासक्रम में सम्मीलित होने के लिए दि हुई सम्मती

अभ्यासक्रम में हेतु जानकारी : -

होमोसायस्टिन व असिमेट्रीक डायमिथॉईल अर्जिनाईन की गर्भावस्था में मात्रा और गर्भावस्था में उनकी उत्पत्ती इसके बारे में के. एल. ई. युनिव्हसिर्टी जे. एन. मेडिकल कॉलेज बेळगांव यहॉ. परिक्षण करके तयार किये गये निष्कर्ष.

प्रस्तावना:-

आपको उरप दिए हुए वैद्यकिय संशोधन अभ्यास में सम्मीलित होने के लिए निमंत्रित किया जा रहा है । आप की संबंध में निर्णय लेते समय इस संशोधन में आप का किस प्रकार का सहयोग लिया जाऐगा इसकी जानकारी के लिए आप इस संशोधन अभ्यास पध्दती मुनाफा और नुकसान और किस प्रकार की हिफाजत लि जा रही है, इसके बारे में आपके निर्णय लेने से पहले हम आपको बता रहे है । इस पध्दती को आप को औगत करने के बाद आपकी इसके बारे में सम्मती ली जाऐगी । इसलिए आप निचे लिखा हुआ ध्यान पुर्वक पढिए और अन्य लोगों के साथ सला मशहुरा करके इस संशोधन अभ्यास में सम्मिलित होने का निर्णय लिजिए ।

इस अभ्यास की किस प्रकार आपको भविष्य में मदत मिलेगी यह हम नही कर सकते । बल्कि इस अभ्यास के व्दारा हमें भविष्य में आप जैसे लोगों का औषधोपचार करनेकी मदत मिल सकती है ।

आप यदि इस अभ्यास क्रम में सम्मिलित होने की सम्मती देते हो तो आपकी इस सबंध के एक नमुना फार्म के ऊपर सही ली जाएगी ।

इस संशोधन अभ्यास का उपयोग और उद्देश क्या है ?

इस अभ्यासक्रम गर्भावस्थेमें होने वाले स्त्रियों का होमोसायस्टिन व ए. डी. एम. ए. ची मात्रा प्राथमिक गर्भावस्था में कितनी है और यह मात्रा कम या ज्यादा होने पर गर्भावस्ता में कौनसे विपरित / प्रतिकुल परिणाम होते है तथा गर्भावस्थेमें ज्यादा रक्तदाब होना, वारीका प्राथमिक गर्भावस्थेमें अलग होना, गर्भपात और गर्भ में रहनेवाले शिशु का वजन कम रहना इस सबंध में हम समज शकते है । इस सबंध में यहा के लोकवस्ती विभाग में कोई भी संशोधन और अभ्यास अभितक हुआ नही है । इसलिए इस अभ्यासक्रम की मदत से होमोसायस्टिन व ए. डी. एम. ए. ची मात्रा कितनी चाहिए । और प्राथमिक गर्भावस्ता में कितनी चाहिए और इसके प्रतिकुल और विपरित परिणाम क्या होंगे यह समज में आ सकता है ।

खर्चा और मोबदला :-

ऊपर लिखित अभ्यास परिक्षण करने हेतु आपको किसी प्रकार का वित्तीय खर्च नही करना पडेगा । इस संशोधन अभ्यास में आप में भी समिलित होते है हो आपको किसी प्रकार का मोबदला नही मिलेगा ।

मै इस अभ्यास में यदि सम्मिलित होता है तो क्या होगा ?

ऊपर दि गई जानकारी प्राप्त करने के बाद और आपकी जानकारी हो गयी । इस सबंध में सही लेने के बाद आपको तीन मिलीमिटर खून आप के शरीर से लिया जाऐगा और वह प्रस्तुती संशोधन के लिए तपासा जाएगा । खुन लेने के बाद उसके ऊपर प्रक्रिया करते होमोसायस्टिन व ए. डी. एम. ए. ची मात्रा कितनी है । इसका अभ्यास प्रयोग शाळा में किया जाऐगा और ऐसे मात्रा की नोंद गर्भावस्था में प्रसुती होने तक समय समय पर की जाऐगी । संशोधक ये आपके संबंधी की वेयक्तिक जानकारी हासिल करेंगे और वे आपके आरोग्य सबंध की जानकारी इक्ठा करेंगे । यह अभ्यास करने के बाद वैद्यकिय रित्या उसका वर्गीकरण किया जाऐगा और उसके व्दारा अलग अलग निष्कर्ष निकाले जाऐंगे ।

धोके और मुनाफा :-

इस अभ्यास में आप को कोई धोके या मुनाफा नही मिल सकता ।

आपके प्रश्न :-

इस संशोधन अभ्यास क्रम संबंधी आपको कोई सवाल है तो आप डॉ. , स्त्रियांचे रोग तज्ञ व प्रसुति शास्त्र विभाग के. एल. ई , युनिव्हसिटी . जे. एन. मेडिकल कॉलेज , फोन नं. , और मो. नं. , अथवा डॉ. एम. बी. , स्त्रि रोग तंज्ञ व प्रसुति शास्त्र विभाग के. एल. ई, युनिव्हसिटी . जे. एन. मेडिकल कॉलेज, फोन नं. , व मो. नं. , इनके साथ संपर्क कर सकते है ।

यदि आपको आपके आधिकार के बारे में कोई शंका है तो डॉ. गंगा पिली, प्रोफेसर व पॅथॉलॉजी विभाग प्रमुख, जो जे. एन. मेडिकल कॉलेज, इथिक्स कमिटी व मानवीय अधिकार संस्था संबंधी की चेअरमन है और उनका फोन नं. ०८३१-२४७३७७७, इक्टेंशन १५२७ और मोबाईल फोन नं. ९४८०२७५६०१ यह है, इनके साथ सबंध प्रस्थापित करके आपकी शंका का समाधान कर सकते है ।

यदि आपको इस अभ्यास में आगे शामिल नही होना है तो क्या परिणाम हो सकते है ?

आपका इस संशोदन अभ्यास में सम्मिलित होना स्वयंम घोषित है । आप इस अभ्यासक्रम में सम्मिलित होने के लिए इन्कार कर सकते है और आपका यदि आप इस अभ्यासक्रम सम्मिलित हुए तो आप का नाम इसमें से कम करवा सकते हो। इस कारण आपको कोई भी शिक्षा या किसी प्रकार नुकसान नही होगा । यदि आपने आप का इस संशोधन अभ्यासक्रम से नाम कम कर लिया तो आप को आगे औषधोपचार करने के लिए कोई भी समस्या नही होगी । संशोधक इस अभ्यासक्रम में यदि सम्मिलित होनेवाले व्यक्ति कम होगे तो यह अभ्यासक्रम किसी भी वक्त आगे नही चला सकते है ।

यदि आप का नाम इस अभ्यासक्रम में शामिल हुआ तो यह गोपनिय रखा जाऐगा क्या ? आपके द्वारा आपकी व्यक्तिगत जानकारी किस प्रकार से अभ्यासक्रम में इस्तेमाल कि जाऐगी ?

आप के व्दारा, जो कुछ संशोधन के लिए जानकारी हासील कि गई है यह गुप्त रखी जाएगी । आपका जो मेडिकल फाईल तैय्यार किया जाएगा वह दवाखान्यामें या डॉक्टर के ऑफीस में देखा जाऐगा और इस सबंध की जानकारी और निष्कर्ष यह गुप्त रखे जाऐगें तथा वे किसी को ही बताए नहीं जाऐंगे ।

इसमें सामिल होने का नमुना आपके द्वारा सहि करने के बाद आप की अनुमती लेकर वह तुम्हारे व्यक्तिगत फाईल में रखा जाऐगा और इसकी जानकारी सिर्फ ऊपर लिखे व्यक्ति जो अभ्यास संशोधन कर रहे है उनके द्वारा इस्तेमाल किया जाएगा ।

ऊपर लिखित जानकारी आप पढकर, और समझाकर यदि आप इस संशोधन अभ्यासक्रम सम्मिलित होते है तो आपको हम धन्यवाद देते है ।

संशोधन अभ्यासक्रम में सम्मीलित होने के लिए दि हुई सम्मती

अभ्यासक्रम में हेतु जानकारी : -

होमोसायस्टिन व असिमेट्रीक डायमिथॉईल अर्जिनाईन की गर्भावस्था में मात्रा और गर्भावस्था में उनकी उत्पत्ती इसके बारे में के. एल. ई . युनिव्हसिर्टी जे. एन. मेडिकल कॉलेज बेळगांव यहॉ. परिक्षण करके तयार किये गये निष्कर्ष.

सम्मीलीत होने वाले का नाम : _____

बॉक्स में सक्षिप्त सही करने की विनती

i) मै ऐसे बताना चाहता हुँ कि, यह पर लिखित संशोधन का परा पत्रक पढ लिया है । और इसे मैने समझा लिया है । इसके अलावा इस सबंध में कोई भी प्रश्न पुछने का अधिकार प्राप्त हुआ है । ☐

ii) मेरे यह समझ में आया कि, मेरा इस संशोधन अभ्यासक्रम में सम्मिलित होना यह मेरे इच्छे के नुसार मैने किया हुआ है और इस कार्यक्रम में मुझे यदि हिस्सा लेना नही है तो मै इस संशोधन अभ्यास क्रम से कभि भी मुक्ती प्राप्त कर सकता हुँ । इस सबंध में मुझे कोई भी कारण देने की जरुरत नही तथा इसकी वजह से यहा पर मुझे औषधोपचार मिलने की प्रक्रिया पर कोई भी असर होनेवाला नही है और मेरे किसी भी अधिकार का हनन नही होनेवाला है। ☐

iii) मेने इस संशोधन अभ्यासक्रम से मेरा नाम कम कर लिया तो भी यह अभ्यासक्रम जिसने जाहिर किया है तथा जो कोई उनकी तरफ इस संशोधन अभ्यासक्रम करनेवाला है तथा इथिक्स कमिटी और इसके सबंध में आनेवाले अधिकारी इनको मेरे आरोग्य सबंधी जो कोई रेकार्ड प्राप्त हुआ है वह वे इस संशोधन उपक्रम में उपयोग में ला सकते है । इसके अलावा इस अभ्यासक्रम मैं सम्मिलित हुआ हुँ इसकी जानकारी उरप लिखे अधिकारी गोफनिय रखेगें और मेरी इस सबंध की जानकारी किसी भी अन्य व्यक्ति को नही देंगे और मेरे बारे में किसी को भी वे इस विषय के बारे में नही बताएगें । ☐

iv) इस अभ्यासक्रम व्दारा प्राप्त किये हुए निष्कर्ष भविष्य में वैद्यकिय शास्त्र कि प्रगती करने के लिए लाये जाऐंगे और इस सबंध में मेरा अभ्यासकरने वालों पर मेरा कोई भी बंधन नही होगा । ☐

v) मै ऊपर लिखे अभ्यासक्रम में सम्मिलित होने की मेरी सम्मती दे रहा हुँ । ☐

जिस व्यक्ति ने सम्मिलित होने के लिए सहमती प्राप्त की उसका नाम : _____

इस सम्मिलित होने वाले व्यक्ति की सही या उसका बाह्ये हाथ का अंगुठा :. _____

तारीख : ☐☐ – ☐☐ – ☐☐☐☐

सूचित सहाति लेने वाले व्यक्ति का नाम : _____

सूचित सहाति प्राप्त करने वाले व्यक्ति के हस्ताक्षर : _____

यदि रुग्ण को लिखना पढ़ना नही आता है तो निष्पक्ष साक्षिदार इस जानकारी पत्र के बारे में सहमती सबंधी इसके साथ चर्चा करते रुग्ण की सहमती प्राप्त कर सकते है । ऐसे स्थिती में रुग्ण सही या उसके दाह्ये हात का अकुंठा का निशान रुग्ण के प्रतिनिधित्व करनेवाले की सही ली जाऐगी।

रुग्ण के कानुनुसार इससबंध में उसकी तरफ से सही करणेका पत्रक : - लागु नही ☐

मै ऊपर लिखित रुग्ण से बातचित करके इसके साथ संवास किया है । इसके बाद उस रुग्ण को सम्मती सबंधी पुर्णत: जानकारी कि गयी है । और संशोधन अभ्यास क्रम के बारे उसको बताया गया है । इस संशोधन सबंधी कोई प्रश्न और रुग्ण का इस सबंध में हिस्सा यह मैने रुग्ण को समझा दिया है । और मै ऐसे अपने इच्छेनुसार बता रहा हु कि, इस अभ्यासक्रम सम्मती सबंध में मैने रुग्ण को औगत किया है । और रुग्न ने इस कार्यक्रम सहभागी होने की इच्छा और सहमती जाहीर की है इसके बाद मै इस सबंधीत नमुना फार्म पर अपने हस्ताक्षर कर रहा हुँ ।

रोगि का नाम : _____

कानून के मुताबीक प्रतिनिधित्व करनेवाले व्यक्ती का नाम : _____

रोगि का उसके साथ रिश्ता :- _____

कानून के मुताबीक प्रतिनिधित्व करनेवाले की सही :- _____

तारीख : ☐☐ – ☐☐ – ☐☐☐☐

रुग्ण को इसकी जानकारी किये जाने के बाद सम्मती प्राप्त करनेवाले निष्पक्ष साक्षिदार का प्रमाणपत्र:
लागु नही ☐

मै, निचे सही करनेवाला ऐसा मेरे इच्छेनुसार जाहिर कर रहा हुँ की, मैने ऊपर लिखित जानकारी रुग्ण को दि है । और कानुन के नुसार प्रतिनिधित्व करनेवाले व्यक्ति को पुर्णत: समझा दि है । इसके बाद रुग्ण ने इस सबंधी सहभागी होने की सहमती अपने इच्छा के मुताबिक दि है ।

निष्पक्ष साक्षिदार का नाम : _____

निष्पक्ष साक्षिदार की सही : _____

तारीख : ☐☐ – ☐☐ – ☐☐☐☐

ANNEXURE III – PROFORMA

Screening form

Screening number : ☐☐☐☐☐

Date of screening (dd-mm-yyyy) : ☐☐ - ☐☐ ☐☐☐☐

First name : _____ Middle name : _____ Last name :_____

Husband's name : _____

Address : H.no-_____

Street _____

Taluka_____

District_____

Mother's Address: H.no_____

Street_____

Taluka_____

District_____

Phone number: _____

Husband's phone number: _____

Landline (optional): _____

Age (years): ☐☐

OP /IP number: ☐☐☐☐☐☐

1-yes 2- no

Singleton gestation ☐

Gestational age ≤18weeks ☐

Willing to deliver at teaching hospital attached to KLE University's J.N Medical College, Belagavi : ☐

Known case of hypertension ☐

Known case of overt Diabetes Mellitus ☐

Known case of pre-existing renal/hepatic disease ☐

Any other significant chronic illness : ☐

If yes, specify _____

Eligible ☐

Consented ☐

Data collection instrument

Enrolment number: ☐☐☐

Obstetric score :

Gravida: ☐

Para : ☐

Living: ☐

Abortion: ☐

LMP (dd-mm-yyyy): ☐☐ ☐☐ ☐☐☐☐

EDD (dd-mm-yyyy): ☐☐ ☐☐ ☐☐☐☐

Corrected EDD (if any) (dd-mm-yyyy): ☐☐ - ☐☐ ☐☐☐☐

Dating scan done on (dd-mm-yyyy) : ☐☐ - ☐☐ ☐☐☐☐

Period of gestation: ☐ weeks ☐ days ☐

Diet: _____

Investigations

Haemoglobin level (gm /dl) : ☐☐ ☐

If anaemia present,

Peripheral smear ☐

1) Microcytic hypochromic
2) Macrocytic
3) Dimorphic
4) Normocytic normochromic

DIPSI (mg/dl): ☐☐☐

TSH (µIU/ml): ☐ ☐☐

Urine Albumin: ____

Blood group: _____

HIV: _____

HBsAg: _____

USG report : _____

Any other investigations, specify :

Study investigations

Homocysteine (µIU/ml): ☐☐☐

ADMA (µIU/ml): ☐ ☐☐

Outcome of the pregnancy:

1-yes, 2-no

Full term: ☐

Preterm: ☐

Birth weight (kg): _____

Gestational Hypertension: ☐

Pre-eclampsia: ☐

Eclampsia: ☐

FGR: ☐ if yes, details: _____

Stillbirth: ☐ if yes, FSB ☐ MSB ☐

Details:_____

Miscarriage: ☐ if yes, details: _____

Abruptio placenta: ☐

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
1	1	4136207	21	G2A1	mixed	5	0.3				yes	2.1				yes		HSV 1 & 2 IgM positive
2	2	4189978	23	primi	veg	3.6	3.4				yes	1.7				yes		
3	3	4226281	23	Primi	Veg	24.2	4			yes		1.6			yes			
4	4	4245726	28	G2P1L1	mixed	13	3.2			yes		2.83						
5	5	4280453	20	Primi	veg	4	0.3				yes	2.5						
6	6	4194559	22	Primi	veg	16	1.2				yes	3.48						
7	7	4253583	25	G2P1L1	mixed	16.8	0.7				yes	2.55						
8	no	3510470	22	G2P1L1	mixed													
9	8	4263521	22	G2P1L1	mixed	9	0.6				yes	2.2				yes		
10	9	4227740	25	Primi	mixed	22	0.9			yes		1.95						
11	10	4270485	22	G2P1L1	mixed	8	0.5				yes	2.8						
12	no	4253575	24	G2P1L1	mixed						yes	3.18						
13	no	4224432	38	Primi	mixed													
14	11	4272018	20	Primi	veg	18	4.2				yes	2.7						
15	no	4271752	25	G2A1	veg													
16	12	4271354	24	G2P1L1	veg	7	0.24				yes	3						delivered at other hospital
17	13	4144844	25	Primi	mixed	13.2	6				yes	3.8						
18	14	4259475	24	G2P1L1	mixed	9.02	0.42				yes	2.52						
19	no	4259073	25	primi	mixed						yes	3.2						
20	15	2456592	23	G2P1L1	veg	8.04	0.46				yes	2.7						delivered at other hospital
21	16	4241509	25	Primi	mixed	9.04	0.54				yes	3.58						
22	17	3345944	24	G2P1L1	mixed	7.13	0.62				yes	2.63						

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
23	18	4244229	22	G2P1L1	veg	9	1.34				yes	3.02		yes				
24	19	4267630	22	Primi	mixed	11.13	0.82			yes		1.9	yes				yes	revealed abruption and couvalaire uterus
25	20	4138926	19	Primi	mixed	12.52	0.98				yes	2.33				yes		
26	21	4239289	27	Primi	veg	6.87	0.58				yes	3						delivered at other hospital
27	no	4270536	21	primi	mixed													
28	no	4274596	20	G2P1L1	veg													
29	22	4275787	28	G2P1L1	mixed	14.2	2.42				yes	2.9		yes				
30	23	4255932	25	G3P2L1	veg	9.4	0.45				yes	2.5						
31	24	4241115	25	G3P2L2	mixed	8.3	0.36				yes	3.48						
32	25	4180700	23	Primi	mixed	4.9	0.1				yes	2.9						
33	26	4267575	21	G2P1L1	mixed	5.7	0.44				yes	2.7						
34	27	4261123	26	G2p1L1	Mixed	4.9	0.3				yes	2.5						
35	28	4260717	27	Primi	veg	7.6	0.2				yes	2.53						
36	no	4278298	22	G2P1L1	mixed													
37	29	4232281	21	G3P1L1A1	veg	9.1	0.34				yes	2.5						
38	30	4269228	25	G2P1L1	mixed	14.2	2.5				yes	1.3		yes		yes		delivered at other hospital
39	31	4252138	21	Primi	mixed	5.9	0.7				yes	2.8						
40	32	4278613	22	Primi	mixed	8.2	0.35				yes	3.5						
41	33	4234118	29	G4P2L2A1	veg	9.4	0.67				yes	3.14						
42	34	4274921	33	G3P2L2	mixed	7.4	0.5				yes	2.82		yes				
43	35	2743951	24	G3P1L1A1	mixed	5.9	0.36				yes	3.7						
44	36	4253269	20	Primi	mixed	4	1.8				yes	3.1						

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
45	37	4278881	22	G2P1L0	mixed	7.2	0.1			yes		2.05						ICT positive
46	38	4278189	22	Primi	mixed	5.4	0.41				yes	3.3						
47	39	4262691	19	G2A1	mixed	9.4	0.57				yes	2.75						delivered at other hospital
48	40	4239793	22	Primi	mixed	4.7	0.19				yes	3						
49	41	4278228	21	Primi	mixed	12.4	4.9				yes	2.4				yes		
50	no	4280097	23	primi	mixed													
51	42	4200920	24	pimi	veg	5.9	0.26				yes	2.2				yes		
52	43	4263655	21	G2A1	mixed	4.1	0.4				yes	2.89						
53	44	3632205	21	G2P1L1	mixed	4.31	4.9			yes		2.4						
54	45	4263662	27	Primi	mixed	3.3	8				yes	3.2		yes				
55	46	4281120	21	Primi	mixed	2.5	10				yes	2.4	yes					
56	47	3877846	24	G3P1L1A1	mixed	3.9	0.13				yes	2.5						delivered at other hospital
57	no	4263987	22	primi	veg													
58	48	4272050	23	G2P1L1	mixed	5	0.29	yes										spontaneous complete abortion at 4th month
59	49	4275941	23	G2P1L1	veg	6.4	0.37				yes	2.9						
60	50	3518470	19	G2P1L1	veg	2.8	0.49				yes	2.6						delivered at other hospital
61	51	4268538	24	G2P1L1	veg	4.5	0.22				yes	2.9						
62	52	4283979	25	G3P2L2	mixed	5.2	2.4				yes	2.5						delivered at other hospital
63	53	4271972	26	G2P1L1	mixed	30.1	5				yes	2.06				yes		
64	no	4259551	20	G3P1L0A1	mixed													
65	54	4278229	23	G2P1L1	mixed	5.9	0.17				yes	2.95						
66	55	4217420	20	Primi	mixed	8.1	0.3				yes	2.6						

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
67	56	4286491	22	Primi	mixed	3.2	0.15				yes	3.62	yes					
68	57	4285556	25	G3P2L2	mixed	3.3	1.92				yes	3						
69	58	4285193	22	Primi	mixed	12.5	0.8			yes		2.5						
70	59	4260855	30	G3A2	veg	30	5			yes		1.5				yes		
71	60	4279211	22	Primi	mixed	24	4.2				yes	1		yes		yes		delivered at other hospital
72	61	4285590	24	G2P1L1	veg	9.4	0.37				yes	2.8						delivered at other hospital
73	62	4285229	24	G2P1L1	veg	7	0.4				yes	3.8						delivered at other hospital
74	63	4258847	28	Primi	veg	36	4.8			yes		2.1						
75	64	4279593	22	G3P2L0	veg	17	1.4	yes										missed abortion 4th month at other hospital
76	65	4287450	28	G3P1L1A1	veg	13.5	0.6				yes	2.6	yes					
77	66	4235483	23	Primi	mixed	18	1.41				yes	3.5						
78	67	4279502	24	G2P1L1	mixed	5.6	0.28				yes	2.7						
79	68	4287443	26	G3P1L1A1	mixed	24	0.72				yes	3						
80	69	4288422	21	Primi	veg	19.6	3.2				yes	2.5						delivered at other hospital
81	70	4265303	21	Primi	veg	38	4.1			yes		2.3						delivered at other hospital
82	71	4280603	35	G2P1L1	mixed	28	0.54				yes	2.7						
83	72	4265602	22	Primi	mixed	13.2	0.19				yes	2.3				yes		delivered at other hospital
84	73	3114238	25	G2P1L1	veg	96	7	yes										missed abortion at 11w 5day
85	74	4265563	28	Primi	mixed	25.8	4.1				yes	2.7						
86	75	3358416	24	G2P1L1	mixed	34	4.8		yes	yes		690gms						FSB, Dandy walker malformation with occipital encephalocele
87	76	4281044	25	G2P1L1	mixed	9	0.42				yes	3.28						

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
88	77	4274576	23	G3P2L2	mixed	13.2	8				yes	2.57						
89	78	4288888	24	Primi	mixed	13.2	6											
90	79	4288759	21	Primi	mixed	32	4.84			yes		2.5						
91	80	3390810	28	G6P5L1	mixed	9	4.6				yes	2.5						
92	81	4221741	23	G3A2	mixed	48	4.2				yes	2.5						delivered at other hospital
93	82	4290031	22	Primi	mixed	13.2	8				yes	3.3						
94	83	4232517	33	G4P1L1A2	mixed	56	2.8				yes	2.46						
95	84	4273789	26	G3P1L1A1	mixed	30	4.2				yes	2.6						delivered at other hospital
96	85	4259530	22	G2P1L1	mixed	7	0.1				yes	3.34						
97	86	4291397	23	G2P1L0	mixed	3	1.44		yes	yes		2.82					yes	True knot, IUD, FSB
98	87	4262300	30	Primi	mixed	5.4	7				yes	2.5						
99	88	4276496	20	Primi	mixed	13.8	6.4				yes	2.6						
100	no	4293191	27	primi	veg													
101	89	4259582	25	G2P1L1	veg	11	4.2				yes	2.4						
102	no	4241505	23	primi	veg													
103	90	3641302	24	G2P1L1	veg	64	0.52			yes		2.5						
104	91	2159211	23	G2P1L1	veg	13.2	8.4				yes	2.48				yes		
105	92	4292538	22	Primi	veg	8	0.22											
106	93	4293195	27	Primi	Mixed	24.2	1.8											
107	94	3027186	33	G2P1L1	Mixed	72	2.6				yes	3						
108	95	4260748	26	G2P1L1	Veg	3.5	0.1				yes	2.58						
109	no	4277269	22	primi	mixed													

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
110	96	4286904	29	G3P1L1A1	veg	9.4	4.6				yes	2.7	yes					
111	97	4296225	26	primi	veg	17	0.75											
112	98	4063239	21	primi	veg	84	0.7				yes	2.8						delivered at other hospital
113	99	4295914	19	G2A1	veg	9.2	0.4				yes	3						delivered at other hospital
114	100	4218917	23	primi	mixed	19.6	4.82				yes	2.8						
115	101	4244653	30	G2P1L1	mixed	12	1				yes	3.6	yes					
116	102	4265730	29	G3P1L1A1	mixed	31.8	0.76				yes	3						delivered at other hospital
117	103	4297191	25	G2P1L1	veg	15.9	1.8											
118	104	4090047	22	primi	mixed	18	4.81			yes		1.6		yes				non immune hydrops
119	105	4256021	30	G2P1L1	mixed	16.2	1.42				yes	2.46				yes		Vbac
120	106	4083107	25	G3P2L2	mixed	7	0.4				yes	2.9						
121	107	4297543	22	G2P1L1	veg	20	5			yes		2.3				yes		
122	no	4297448	21	G2A1	veg													
123	108	4281205	20	primi	veg	6.3	4.8				yes	2.14				yes		
124	109	4288723	26	primi	veg	31	5		yes	yes		1.06						MSB
125	110	4297437	24	primi	mixed	24	5.3			yes		2.7		yes				
126	111	4297516	24	primi	mixed	14	4.2											
127	112	4300018	24	G4P2L2A1	mixed	6	0.42				yes	2.5						delivered at other hospital
128	113	4250353	29	G3P1L1A1	mixed	14	4.84				yes	2.63						
129	no	4293584	27	G2P1L1	veg													
130	114	4293051	24	Primi	mixed	64	8				yes	2.5						delivered at other hospital
131	115	4300070	27	primi	veg	27	1.4				yes	3.1						

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
132	no	4293343	28	primi	veg													
133	116	4294300	26	G2P1L1	mixed	31.7	1.43				yes	2.74						
134	117	3625570	22	G2P1L1	mixed	78	1.2				yes	3						delivered at other hospital
135	118	3415535	22	G3P1L1A1	veg	15	0.9			yes		1.7		yes		yes		
136	119	2490256	29	G2P1L1	veg	44	1.42				yes	3						
137	120	4301051	23	G3P2L1	veg	16.2	4.8				yes	2.7						delivered at other hospital
138	121	4283973	23	primi	veg	15.8	0.34			yes		2.5						
139	122	2621910	26	G3P2L1	veg	7.8	0.27				yes	2.9						
140	123	4293259	25	G2P1L1	veg	22	0.54				yes	2.9						
141	124	4314344	19	primi	veg	36	2.51				yes	3						delivered at other hospital
142	125	4314274	25	primi	veg	17	1.4				yes	2.37				yes		
143	126	3856399	24	G2P1L1	mixed	62	6				yes	2.95						
144	127	4314377	27	G4P1L1A2	mixed	8	4.2				yes	2.05		yes				
145	128	4314639	22	G2P1L0	veg	6.5	0.52				yes	2.9						
146	129	4230735	24	G3P1L1A1	mixed	5.7	0.41				yes	2.6						
147	130	4314613	28	primi	mixed	3.3	4.84											
148	131	2145063	19	G2P1L1	veg	28.2	4.8				yes	2.9						
149	132	4314167	30	G2P1L1	veg	14	4.8				yes	2.8						
150	133	4316675	23	G3P1L1A1	mixed	16	1.2											
151	134	4002684	29	G2A1	veg	24	4.6											
152	135	4263565	25	G2P1L1	veg	48	4.82				yes	3.2						
153	136	4323356	24	G2P1L1	veg	3.2	2.67				yes	2.8						

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
154	137	4324564	25	G2P1L1	mixed	32	2.6				yes	3.6						delivered at other hospital
155	138	4332446	23	G2P1L1	mixed	3.4	0.5				yes	3.32						
156	139	4331951	24	G2P1L1	veg	16	4.9				yes	2.4				yes		delivered at other hospital
157	140	4254491	22	primi	veg	12	3.2			yes		1.4		yes		yes		delivered at other hospital
158	141	4332292	23	primi	mixed	14	2.6											
159	142	4264258	19	primi	mixed	29	5.2				yes	2.44				yes		
160	143	4348165	21	G2P1L1	veg	66	0.42				yes	2.9						
161	144	4301290	28	primi	veg	12	0.41				yes	3.08						
162	145	4335171	20	primi	veg	28	2.62											
163	146	4262679	19	primi	mixed	28	4.2				yes	3						delivered at other hospital
164	147	4341390	24	G2P1L1	mixed	36	4.1				yes	2				yes		delivered at other hospital
165	148	3864138	26	G3P1L1A1	mixed	28	8.9			yes		2.5						
166	149	4314313	24	primi	veg	18	1.2				yes	2.39	yes			yes		
167	150	4061071	22	G2A1	mixed	4.2	2.2											
168	151	4348068	29	G2P1L1	mixed	8	2.2				yes	2.4				yes		
169	152	4341450	22	G2P1L1	veg	14.8	2.4				yes	2.5						
170	153	4356865	21	G2A1	mixed	7.2	0.21				yes	3.08						
171	154	4356716	22	primi	veg	12	0.9				yes	3	yes					
172	155	4357288	23	primi	mixed	15	2				yes	3.06						
173	156	4366141	20	primi	mixed	22	4.2				yes	2.2				yes		
174	157	4366007	20	primi	mixed	4.9	0.41				yes	2.92						
175	158	4373314	24	primi	mixed	36	4.84											

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
176	159	4373515	20	primi	mixed	15	1.2											
177	160	3421418	25	G2P1L1	mixed	8.5	0.32				yes	2.5						
178	161	4348147	21	primi	mixed	8	4.8				yes	3.01	yes					
179	162	4366197	30	G2P1L1	veg	12	0.03				yes	2.3				yes		HSV +
180	163	3735306	20	G2P1L1	mixed	14	1.42				yes	2.5				yes		
181	164	4365601	26	G3P2L2	veg	2.7	0.44				yes	3.05						
182	165	4375186	22	G2A1	veg	5.9	0.24				yes	2.85						
183	166	4322788	23	primi	mixed	9.2	0.43				yes	2.73						
184	167	4378354	20	primi	mixed	18	0.84				yes	2.9		yes				
185	168	4378040	26	G2P1L1	mixed	12	1.31				yes	2.4				yes		
186	169	4356713	28	G2P1L1	mixed	7	0.26	yes										missed abortion at 3rd month
187	170	4373300	29	G4P1L1A2	mixed	5	0.84	yes										incomplete abortion at 3rd Month at other hospital
188	171	4367575	22	G2P1L1	mixed	4.2	0.82				yes	2.5						
189	172	4361740	24	G2P1L1	veg	12	1.6											
190	173	4483963	26	primi	mixed	7.2	0.11				yes	2.9						
191	174	4509200	24	G3P2L2	veg	4.5	0.13				yes	3.1						delivered at other hospital
192	175	4509442	28	primi	mixed	4.9	0.225			yes		1.99				yes		
193	176	4509950	27	G4P1L1A2	Veg	14	0.12											
194	177	4500755	19	primi	mixed	5	0.14											
195	178	4465753	23	G2P1L1	mixed	10	5			yes		1.8				yes		delivered at other hospital
196	179	4509706	20	primi	mixed	6	0.49				yes	2.6						

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
197	180	4399005	25	primi	veg	14.3	0.16											
198	181	4513085	20	primi	mixed	1.25	0.92											
199	182	4484005	21	G2P1L0	mixed	4.6	0.3											
200	183	4500757	23	G2P1L1	veg	90	9				yes	2.7						
201	184	4320939	22	primi	mixed	5.3	0.32											
202	185	4280667	20	G2A1	veg	90	0.69											
203	186	4518956	22	G2P1L1	mixed	7.4	0.33				yes	3.1						
204	187	4500609	27	G2P1L1	mixed	7.4	0.7											
205	188	4484066	19	primi	mixed	8.4	0.34				yes	3.12						
206	189	2962340	33	G3P2L2	mixed	9.2	3.1											
207	190	4420095	24	primi	veg	16.1	9			yes		1.5				yes		delivered at other hospital
208	191	4528118	28	primi	mixed	15.8	1.4											
209	191	4509588	21	G2P1L1	Veg	3.8	0.22											
210	192	4510050	21	G2P1L1	mixed	22.5	0.42				yes	2.6						
211	193	4494432	27	G2P1L1	veg	5.8	4.2				yes	2.7						
212	194	4475331	26	G3P2L2	mixed	8	0.21				yes	3.1						
213	195	4530983	25	primi	mixed	6.5	0.34				yes	2.5						delivered at other hospital
214	196	1118296	23	G4P2L2A1	veg	3.8	0.5				yes	2.8						
215	197	4139978	30	G2A1	mixed	14.4	0.16											
216	198	2168483	25	G2P1L1	veg	6	0.29				yes	3.12						
217	199	4475348	25	primi	mixed	4	4.8			yes		2.01			yes		yes	

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
218	200	4518829	19	primi	veg	3.8	0.47	yes										incomplete abortion at 4th month
219	201	4518870	22	primi	mixed	7.9	0.31											
220	202	4518873	23	primi	veg	5	0.25				yes	3.2						
221	203	3360047	20	G2P1L1	mixed	8.9	0.25				yes	2.8						
222	204	4542513	25	G2P1L1	mixed	20	0.02				yes	2.5						
223	205	4509571	24	G2P1L1	veg	3.6	0.3				yes	3.2						
224	206	4475743	24	G2P1L1	mixed	8.9	0.38				yes	3						
225	207	4528537	25	primi	mixed	18	1.2				yes	2.1				yes		
226	208	4543348	25	G2P1L1	mixed	92	4.8											
227	209	4542850	20	primi	mixed	4.3	0.35				yes	2.1				yes		delivered at other hospital
228	210	2357417	20	G2P1L1	veg	2.7	0.7				yes	2.9						
229	211	2699365	25	G3P1L1A1	Mixed	12	10				yes	2.82						
230	212	4493050	22	Primi	Mixed	8.7	1.6											
231	213	4552994	30	G2p1L1	Mixed	4.9	0.37				yes	2.7	yes					
232	214	2549262	20	G3P2L2	Veg	7.3	0.2				yes	3						delivered at other hospital
233	215	4528297	29	Primi	Mixed	5.1	0.22				yes	2.5						
234	216	4555038	26	G2P1L0	Mixed	94	1.65	yes										missed abortion at 12 weeks
235	217	4537354	23	G2P1L0	veg	50	2.6			yes		1.58						
236	218	4552597	20	Primi	Mixed	2.1	0.13											
237	219	4396051	28	G2p1L1	Mixed	12.5	0.82				yes	2.9						
238	220	4418639	30	G2A1	Mixed	25.6	0.59											

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
239	221	4402981	32	G3P1L1A1	Mixed	8	2.6											
240	222	4570054	25	Primi	Veg	15.8	4.8				yes	3.3						
241	223	4570085	26	G3P2L1	Mixed	0.58	0.74				yes	3.5						
242	224	4570246	20	Primi	Mixed	96	0.82			yes		2.6						
243	225	4570445	24	G2p1L1	Mixed	8	0.74											
244	226	4570096	20	Primi	Veg	25.6	0.94				yes	3.3						
245	227	4570372	23	Primi	Veg	31.7	0.71				yes	2.7						
246	228	4570461	24	G3P2L2	Mixed	14	0.44											
247	229	4570251	20	Primi	Mixed	25.6	1.5				yes	2.7						
248	230	4573442	20	Primi	Mixed	12	4.8											
249	231	4573122	24	Primi	Veg	9.8	0.68				yes	2.9						
250	232	2762494	26	G3P1L1E1	Mixed	12	4	yes										missed abortion at 11weeks
251	233	4537431	27	G2P1L1	Mixed	25	4.8				yes	2.9	yes					
252	234	4537061	20	Primi	Mixed	9	0.54				yes	2.87						
253	235	4553137	24	G2P1L1	Mixed	7.5	0.12				yes	2.4				yes		
254	236	4578513	21	Primi	Veg	12.8	0.15				yes	3.1						delivered at other hospital
255	237	4553123	24	G2P1L1	Mixed	26.8	0.82											
256	238	3742015	22	G2P1L1	Veg	1.07	1.2			yes		1.8		yes				
257	239	4578106	30	Primi	Mixed	25.6	4.8			yes		1.17						tracheal atresia with polyhydramnios
258	240	4578614	25	G2P1L1	Mixed	30	0.82				yes	3.42						
259	241	4579093	20	Primi	Mixed	25	0.52				yes	2.36				yes		
260	242	4578430	22	G2P1L1	Mixed	20	0.6											

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
261	243	4562223	27	G2P1L1	Mixed	2.6	0.52				yes	3.5	yes					
262	244	4577480	20	Primi	Veg	0.99	1.8			yes		1.2		yes			yes	
263	245	4577901	22	Primi	Mixed	26.8	0.82				yes	2.3				yes		
264	246	4483278	22	G2P1L1	Mixed	3.4	0.54				yes	2.03				yes		
265	247	4475429	26	Primi	Mixed	60	2.4				yes	3.56						
266	248	4565803	20	Primi	Mixed	38	0.84											
267	249	4537499	30	G4P2L2E1	Mixed	20	2.4				yes	3.1						
268	250	4587275	23	Primi	Mixed	4	0.2				yes	2.7						
269	251	4587691	31	G3P1L1A1	Mixed	6.7	0.5				yes	2.9						
270	252	4587772	19	Primi	Mixed	12.6	4.2				yes	3.2						
271	253	4587898	21	Primi	Veg	8	0.82	yes										1st trimester incomplete abortion-11weeks
272	254	3195400	24	G3P2L1	Mixed	25	0.61				yes	3.6						
273	255	4588082	23	G3P1L1A1	Mixed	6.4	0.68	yes										incomplete abortion at 4th month
274	256	4586313	24	G2P1L0	Mixed	25	0.84			yes		2.2						
275	257	4595800	23	G3P1L1A1	Mixed	24	0.96				yes	3						delivered at other hospital
276	258	4595696	25	G2P1L1	Veg	42	1.6				yes	2.7						
277	259	4556032	21	Primi	Veg	14	2				yes	2.4	yes			yes		
278	260	3629866	20	G2P1L1	Mixed	1.07	3.2				yes	3						
279	261	4587585	19	Primi	Mixed	14	0.72											
280	262	4605056	21	Primi	Mixed	5	0.3				yes	2.5						
281	263	4605130	23	G2P1L1	Mixed	4.6	0.4				yes	3.3						
282	264	4621478	23	G3P1L1A1	Mixed	0.66	0.26				yes	2.7						

screening number	enrolment number	Out Patient number	Age	Obstetric score	Diet	Homocysteine (µmol/l)	ADMA (µmol/l)	Abortion	Stillbirth	Preterm delivery	Full term delivery	Birth weight (kg)	Gestational HTN	Preeclampsia	Eclampsia	Fetal growth restriction	Abruption	Remarks
283	265	4622453	35	G3P2L2	Mixed	0.54	0.35			yes		2.5						
284	266	4621738	23	Primi	Mixed	0.62	0.28				yes	2.5						delivered at other hospital
285	267	4453553	21	Primi	Mixed	0.46	0.1				yes	3.5						delivered at other hospital
286	268	3761796	30	G2A1	Mixed	0.64	0.82				yes	2.4				yes		
287	269	4613848	25	Primi	Mixed	0.81	1.62				yes	2.5						
288	270	4624800	28	primi	mixed	0.08	4.2				yes	3.3	yes					
289	271	4604917	23	primi	mixed	1.04	1.4				yes	3						delivered at other hospital
290	272	4624716	24	G2P1L1	Mixed	0.93	0.4			yes		2.2						
291	273	4590490	27	G3P1L1A1	Mixed	0.66	0.3				yes	2.7						
292	274	1460773	29	G3P2L2	Veg	1.04	0.5				yes	2.8						
293	275	4630635	27	Primi	Mixed	1.11	4.2				yes	2.7	yes					
294	276	3121495	27	G2P1L1	Veg	1.08	0.7				yes	2.8	yes					
295	277	4647526	24	primi	mixed	0.9	0.72				yes	2.8						
296	278	4647492	23	G2P1L1	Veg	1.23	3.2											
297	279	4647409	25	Primi	Veg	0.46	0.28				yes	2.9	yes					
298	280	4647999	22	G3P1L1A1	Veg	1	2											
299	281	4624844	22	G2P1L1	Veg	0.91	1.52				yes	3.1						delivered at other hospital
300	282	4453553	21	Primi	mixed	0.46	0.2				yes	3						delivered at other hospital