



**WEL-COME**



# Study of Non-traditional Cardiovascular risk factors in Chronic Kidney disease (CKD) and Haemodialysis Dependent patients- A Case Control Study

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# INTRODUCTION

- Cardiovascular disease leading cause of mortality and morbidity in CKD and haemodialysis dependent patients.
- Mortality rates are 10-20 times higher among patients with end stage renal disease, compared with general population , with 50% of this excess burden being attributable to cardiovascular disease.

# INTRODUCTION

- This excess risk is not entirely explained by elevation of traditional risk factors although traditional risk factors are common in CKD and haemodialysis dependent patients.

# INTRODUCTION

- Elevation of Several Non-traditional risk factors associated with an increased risk for cardiovascular disease in CKD and haemodialysis dependent patients.

# AIMS AND OBJECTIVES

1. Study of Non-traditional cardiovascular risk factors in CKD and haemodialysis dependent patients .
2. Compared between normal control population with CKD and haemodilysis dependent patients.

# Methods and Materials

- Place of study/: Nephrology and Haemodialysis department, DMCH
- Duration : one year
- Types of study: Case –control study
- Sample: CKD -48
- MHD-22
- Healthy Control-26
- Case were age and sex matched with control

# Methods and Materials

- All cases were investigated for cardiovascular disease and non-traditional risk factors-(homocysteine, fibrinogen, CRP, Factor VII activity and haemoglobin)
- All investigations were done in a single specialized center in Dhaka.



# Methods and Materials

- Statistical analysis done by using SPSS Windows 11.5., All results presented as mean , percentage and to compared with control ANOVA and chi-square and t –test applied . P value  $<.05$  consider as significant.

# Results

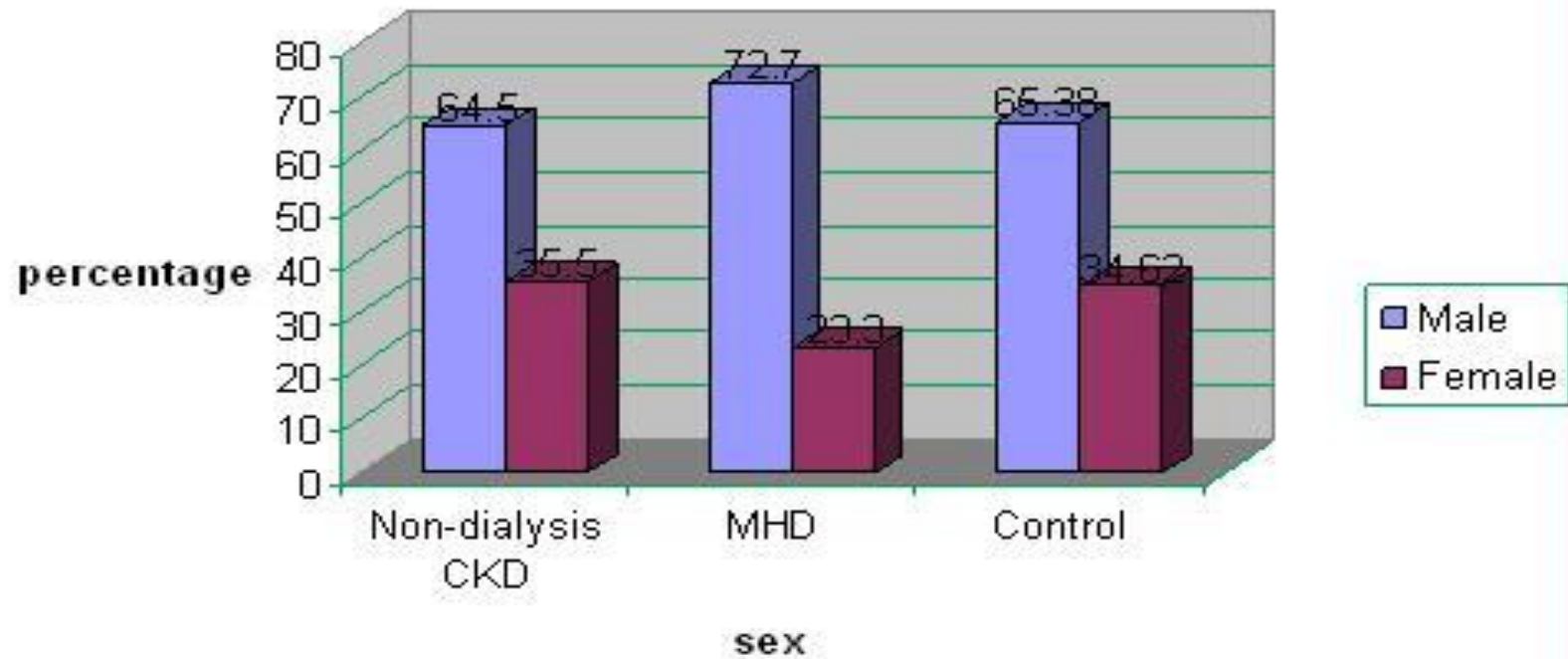
## Baseline characteristic of study population n=96

		Non-dialysis CKD N=48	Haemodialysis dependent n=22	Control n=26
Age (years)		49±13.57	46.23±12.39	44.98±5.20
Sex	Male	31	16	17
	Female	17	6	9
Diabetes		18 (37.5%)	7(31.8%)	
Hypertension		42 (87.5%)	19 (86.4%)	
Smoking		14 (29.2%)	7(31.8%)	7 (26.92%)
Dyslipidaemia		24 (50%)	14 (63.63%)	
IHD		25(52.1%)	13 (59.1%)	
Homocysteine µmol/L		22.99±8.70.	23.76±9.15	15.38± 5.06
Fibrinogen mg/dl		264.10±67.81	259.59±60.92	259.59±60.92
CRPmg/L		52.59±12.16	17.31±18.42	3.90±1.59
Factor VII %		103.97±14.41	106.18±14.64	94.18±12.6
Hemoglobin gm/dl		8.08±1.94	9.46±1.87	13.85 ±1.59

**Tab :1 Baseline characteristics of study population**

## Results

sex disstribution of study population



**Comparison between normal control group and Non-dialysis, Hemodialysis dependent groups:**

<b>Independent variable</b>	<b>Control n=26</b>	<b>CKD without dialysis n=48</b>	<b>CKD with hemodialysis n=22</b>	<b>p-value</b>
<b>Age (years)</b>	<b>44.98±5.20</b>	<b>49.00±13.57</b>	<b>46.23±12.39</b>	<b>.167 (NS)</b>
<b>Homocysteine <math>\mu</math>mol/L</b>	<b>15.38 ± 5.06</b>	<b>27.30 ± 31.12</b>	<b>23.76 ± 9.15</b>	<b>&lt;.001</b>
<b>Fibrinogen mg/dl</b>	<b>180.25 ± 40.64</b>	<b>264.10 ± 67.81</b>	<b>259.59 ± 60.92</b>	<b>&lt;.001</b>
<b>CRP mg/L</b>	<b>3.90± 1.03</b>	<b>52.59 ± 82.16</b>	<b>17.31 ± 18.42</b>	<b>.002</b>
<b>Hemoglobin gm/dl</b>	<b>13.85 ± 1.59</b>	<b>8.08 ± 1.94</b>	<b>9.46 ± 1.87</b>	<b>&lt;.001</b>
<b>Factor VII %</b>	<b>94.18 ± 12.66</b>	<b>103.97 ± 14.41</b>	<b>106.18 ± 14.64</b>	<b>&lt;.001</b>

**Tab-2: Comparison between normal control group and Non-dialysis, Hemodialysis dependent groups:(ANOVA)**

## Comparison between normal control group and non- dialysis CKD group

Variable	Normal control group n-26	Non-dialysis group n-48	Chi-square/t-test value	p-value
Age	44.98±5.20	49.00±13.57	1.05	.394
Male sex %	17 9	31 17	0.445	.576
Homocysteine µmol/L	15.38 ± 5.06	22.99 ± 8.70	4.295	<.001
Fibrinogen mg/dl	180.25 ± 40.64	264.10 ± 67.81	5.946	<0.001
CRP mg/L	3.90 ± 1.03	52.59 ± 82.16	2.996	0.004
Factor VII %	94.18 ± 12.66	103.97 ± 14.41	3.876	<.001
Hemoglobin gm/dl	13.85 ± 1.59	8.08 ± 1.94	11.207	<0.001

Tab-3: Comparison between normal control group and non- dialysis CKD group: (chi-square test applied for qualitative data sex, smoking and t-test applied for quantitative

## Results

Comparison between normal control group and Hemo-dialysis dependent CKD group:

Variable	Normal control group n-26	Hemo-dialysis group n-22	Chi-square/t-test value	p-value
Age	44.98±5.20	46.23±12.39	0.964	.340
Male sex	17	16	0.297	.674
	9	6		
Homocysteine $\mu\text{mol/L}$	15.38 ± 5.06	23.76 ± 9.15	4.355	<.001
Fibrinogen mg/dl	180.25 ± 40.64	259.59 ± 60.92	8.725	<.001
CRP mg/L	3.90 ± 1.03	17.31 ± 18.42	3.640	.001
Factor VII %	94.18 ± 12.66	106.18 ± 14.64	3.997	<.001
Hemoglobin gm/dl	13.85 ± 1.59	9.46 ± 1.87	7.190	<.001

Tab-4: Comparison between normal control group and Hemo-dialysis dependent CKD patients:

# Cardiovascular disease:

## CKD

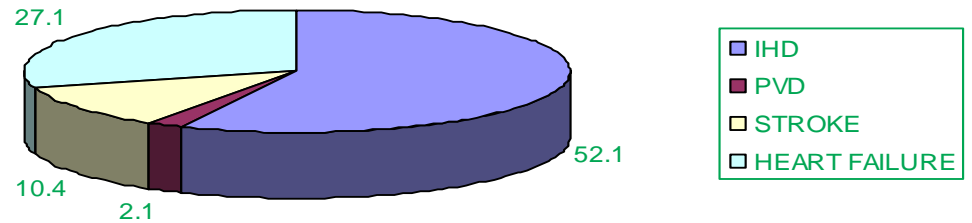
IHD-52.1%

Stroke-10.4%

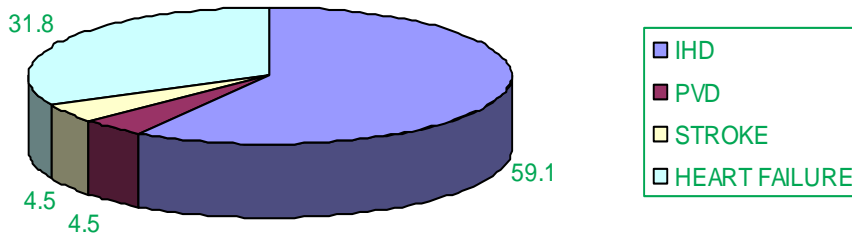
PVD-2.1%

Heart failure-27.1%

CARDIOVASCULAR DISEASE IN CKD



CARDIOVASCULAR DISEASE IN MHD



## MHD

IHD-59.1%

Stroke-4.5%

PVD-4.5%

Heart Failure-31.8%


# Risk factors in CKD and MHD with CVD

- Mean age- 52.92±11.14 years
- Sex- 66.7% (16) male
- DM-31.8%
- HTN-86.4%
- Smoking-31.5%
- Dyslipidaemia -33.34%

Hocysteine	28.79±33.86μmol/L
Fibrinogen	276.58±66.57mg/dl,
CRP	46.23±88.50mg/L
Factor VII	105.79±14.92%,
Haemoglobin	8.89±1.83 gm/dl,



# Limitation:

- We studied limited number of population in a tertiary care hospital.
  - We not study all non-traditional cardiovascular risk factors.
  - More over we had financial limitation to do costly investigation.
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# CONCLUSIONS

- Cardiovascular disease is strikingly higher in Non-dialysis chronic kidney disease (CKD) patients and Hemodialysis dependent CKD
- Both traditional and non-traditional risk factors are increased in CKD and hemodialysis dependent patients



# CONCLUSIONS

- Traditional risk factors such as hypertension, diabetes, dyslipidaemia, smoking and increase age are well known cardiovascular risk factors were found in both Non-dialysis CKD patients and Hemodialysis dependent patients



# CONCLUSIONS

- Non-traditional cardiovascular risk factors such as anaemia, hyper-homocystenaemia, hyper-fibrinogenomia, increased level of CRP and factor VII activity also significantly higher in both Non-dialysis CKD patients and hemodialysis dependent patients.



**THANK YOU**

