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Editor : Dr. Siddharth N. Shah

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HSICON 2017

Siddharth N. Shah

The incidence of Hypertension is increasing every year in India and all over the world. It is predicted that there will be 213 million hypertensives in India by the year 2015, 25 – 30% adults in urban locations and 15-18% in rural adults will be suffering from high B.P. Also, Hypertension has been recognized as a major factor responsible for a decline in kidney function in patient with diabetic and non-diabetic kidney disease. On the other hand, among patients with chronic kidney disease(CKD), high blood pressure may develop early during the course of the disease and contribute to adverse outcomes. Diabetes and Hypertension are both common disorders, and each is becoming more common in recent decades, both in the advanced economies and the developing world.

One clear factor contributing to both hypertension and diabetes is the growing proportion of the global population that is overweight or obese, particularly in the Western world. In 2014, about 266 million men and 375 million women were obese worldwide vs the 34 million men and 71 million women who were obese in 1975. The epidemiological correlation between these three risk factor – hypertension, type 2 diabetes and obesity – could reveal similar and intricate pathophysiological mechanism.

Editor-in-Chief, Journal of Clinical Hypertension

Obesity has been identified as a risk factor for both type 2 diabetes and hypertension. Obese patients have a 3-fold and 3.5-fold increased likelihood of having diabetes and hypertension. Respectively. It has been estimated that 60% to 70% of hypertension in adults may be directly attributable to adiposity. Obesity is associated with an increase blood mass and a reduction in peripheral resistance.

HSICON 2017 will be organized in Kolkatta from 18-20th August 2017. The conference has generated on good response from all over the country. This issue of the Journal contains all the abstract submitted for the conference. A large number of post-graduates are expected to attend along with the Physicians, Endocrinologist, Nephrologist, Neurologist and nutritionist are expected to attend. Considering the numbers of hypertension and hypertension related abstracts, it is evident that the medical profession has recognized the importance of hypertension in the realm of medicine.

This issue of the Journal includes all the Abstracts received for HSICON 2017. Dr.Jyotirmoy Pal and his team is doing an excellent effort to make this conference a grand success. I look forward to your active participation and interaction during the conference.

Primary Hyperparathyroidism and Hypertension

Ishita Shah¹, Falguni Parikh²

ABSTRACT

Primary hyperparathyroidism (PHPT) is associated with cardiovascular disease, including hypertension, ventricular hypertrophy, vascular and valvular calcification and arrhythmia. Left ventricular hypertrophy caused by PHPT is independent of the presence of hypertension, explaining increased risk of cardiovascular morbidity and mortality amongst this group. We report a case of primary hyperparathyroidism which was unmasked while treating hypertension.

INTRODUCTION

The most common clinical presentation of primary hyperparathyroidism (PHPT) is asymptomatic hypercalcemia which is detected by routine blood screening. The classical manifestations of PHPT – bones, stones, abdominal moans, and psychic groans have become uncommon encounter but are still prevalent in developing countries. PHPT is less common with incidence of <0.01% in hypertensives. However arterial hypertension develops in the majority (56% to 80%) of the PHPT patients.¹ Direct effect of parathyroid hormone on renin secretion which could contribute to the pathogenesis of hypertension and to the vessel sensitization to pressor agents is noted.²

CASE REPORT

We report a case of 50 year old male from Surat (Gujarat) who had hypertension

¹Resident, Department of Medicine, ²Consultant, Department of Internal Medicine, Kokilaben Dhirubhai Ambani Hospital, Mumbai

since 5-6 years. He came to our outpatient department as his blood pressure was not well controlled despite being on anti hypertensive drugs. He was receiving telmisartan (40 mg) and metoprolol (50 mg) once a day for blood pressure.

On examination he was afebrile, Pulse- 80/min regular, all peripheral pulses well felt, no bruits, BP- 160/100 mm Hg in right arm in sitting position with no major difference in blood pressure taken in all 4 limbs. On general examination there was absence of goiter, hirsutism, cushingoid features or neurocutaneous markers. Cardiovascular, respiratory, gastrointestinal and central nervous system examination was normal. There was no family history of hypertension or any other medical illness.

He had undergone several annual health check ups where two-dimensional echocardiography showed concentric left ventricular hypertrophy with 55% ejection fraction. Liver function test, renal function test, thyroid function test, urine examination and other

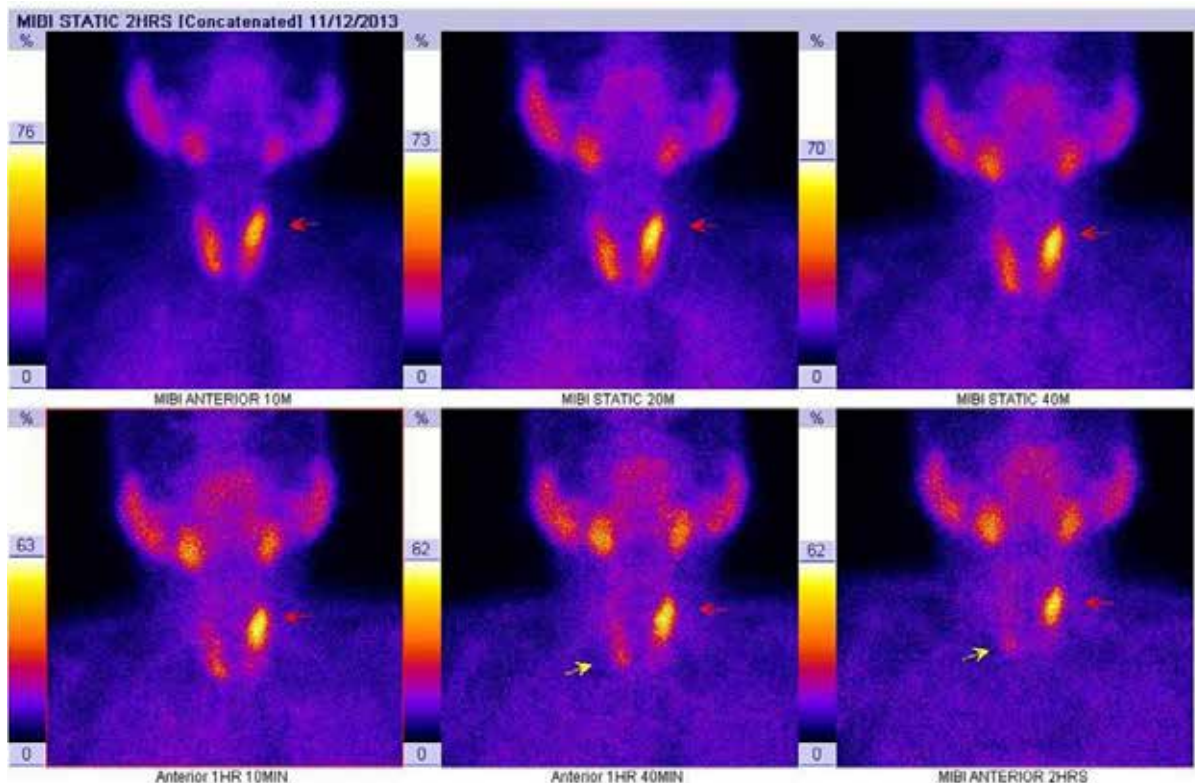


Fig. 1: Sestamibi scan showing left parathyroid adenoma

tests were normal. His calcium level was always in the higher range and on inquiry he gave history of 5-6 episodes of renal colic due to calculi in 10-12 years and history of a mandibular tumour operated 2 years back which was found to be benign on biopsy according to the patient. He gave history of musculoskeletal pains. There was no history of constipation, lethargy, confusion or neuropsychiatric problems.

	Investigations	Reference range
Serum Calcium	13.1	(8.4-10.2)
Serum Albumin	5.29	(3.97-4.95)
Serum Phosphorus	2.7	(2.7-4.5)
Serum Creatinine	0.6	(0.6-1.17)
Vitamin D	30	>30
Serum PTH	358	(15-68.3)

In view of hypercalcemia and high PTH level, technetium-99 labelled Sestamibi scan was done which showed left upper parathyroid adenoma (Figure 1). He underwent left parathyroidectomy under general anesthesia. Histopathology of the specimen confirmed the diagnosis. Post operative calcium reduced

to 10.2 and PTH normalized to 31.9. There was 50% drop in PTH level after 15minutes of adenoma removal.

Patient has been under our follow up since 2013. His blood pressure is well controlled with two antihypertensives and his serum calcium is remaining normal, forty months after surgery.

DISCUSSION

Primary hyperparathyroidism is most commonly caused by a solitary parathyroid adenoma. Its prevalence is highest amongst postmenopausal women (3-4%).³ Recent study shows that clinical profile has now shifted towards less marked symptomatology. Majority of patients remain clinically silent and do not show any classical signs or symptoms. It is often diagnosed with asymptomatic hypercalcemia and the only cure is surgical removal of abnormal parathyroid gland.

PHPT has been associated with increased cardiovascular mortality and morbidity.

Some of the reported abnormalities are hypertension, diastolic myocardial dysfunction, left ventricular hypertrophy, autonomic imbalance, metabolic disturbances and endothelial vasodilatory dysfunction. Mitral annular calcification is also an independent predictor of stroke, myocardial infarction, and cardiac death. Myocardial and valvular calcifications have clearly been demonstrated in PHPT patients with marked hypercalcemia. However, the extent and clinical significance of cardiovascular risk factors related to PHPT are still matters for discussion.

The association of PHPT with arterial hypertension and increased cardiovascular risk would appear to be paradoxical, as parathyroid hormone causes vasodilation through endothelium-independent mechanism.⁴ The mechanism by which excess PTH increases blood pressure was explained by Mazzochi et al⁵ postulating that PTH stimulates in vitro secretion of aldosterone from human adrenocortical cells in concentration dependent manner. This finding suggested that PTH acts as stimulant for aldosterone secretion and it might be involved in causing human Primary aldosteronism. However this mechanism has still remained inconclusive due to lack of much supportive clinical data.

Due to high prevalence of hypertension in general population and low prevalence of PHPT it is difficult to understand whether both the conditions are just coexisting or high PTH is cause of hypertension. Data showed that in patients with hypercalcemic hyperparathyroidism and hypertension for less than six months, surgery showed regression in left ventricular hypertrophy and related target organ damage.⁶

Primary hyperparathyroidism seen in familial multiple endocrine neoplasia (MEN) 1 has different features from sporadic primary hyperparathyroidism. Male to female ratio is even in MEN1 and female predominance is seen in sporadic disease. Hyperparathyroidism presents in the second to fourth decade of life in MEN1, two decades earlier than in sporadic disease. Multiple gland involvement

is seen with MEN1 and high recurrence rate after surgery.^{7,8}

CONCLUSION

Parathyroid adenoma is treatable cause of secondary hypertension and should be corrected by surgical removal in all patients to halt progression of cardiovascular disease. Mild hypercalcemia may not show much difference after surgery but in cases of moderate to severe hypercalcemia significant reduction in cardiovascular morbidity and mortality is noted.

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SCIENTIFIC PROGRAMME

FRIDAY, 18TH AUGUST, 2017

HALL - A

01.00 pm	Old Executive Committee Meeting H.S.I.	
01.30 pm	General Body Meeting H.S.I.	
02.00 pm - 05.30 pm	Free Paper Platform Presentation <i>Judges : T.N.Ghosh, A.N.Rai, R.Chandni</i>	
5.30 pm - 06.00 pm	Tea Break <i>Chairpersons : Amal Kumar Banerjee, Siddharth N. Shah</i>	
06.00 pm - 06.30 pm	Address by President of Glasslow H.S.I. - U.K. <ul style="list-style-type: none">• Less is less or Less is more? The J shaped curve of blood pressure convening <i>Chairpersons: P.K.Sasidharan, Manotosh Panja, M. K. Das</i>	Adrian Brady
06.30 pm - 07.00 pm	Key Note Address: Endocrine Hypertension	Shashank Joshi
07.00 pm - 08.00 pm	Inauguration	
08.00 pm – 09.00 pm	Cultural Programme Inaugural Dinner	

HALL - B

02.00 pm - 05.00 pm	Free Paper Platform Presentation <i>Judges : Udas Ghosh, B. R. Bansode, Soumitra Ghosh</i>	
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HALL - C

02.00 p.m. - 05.00 p.m.	Free Paper Platform Presentation <i>Judges : P. S. Karmakar, Anita Jaiswal, P. K. Sasidharan</i>	
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HALL - A

09.00 a.m. - 10.00 a.m. **Case Presentation**

Chairperson & Moderator : Santosh Salagre, A. Murugnathan, R.R. Chaudhary,
Dwijen Das

HALL - B

Workshop

09.00 a.m. - 10.00 a.m. **BP Measurement and Monitoring**

Chairperson & Moderator : Kajal Ganguly, Nihar Mehta, Shantanu Guha, Dilip Kirpalani

- | | |
|---|-----------------|
| a. Introduction & Pitfalls in BP measurement | Santanu Guha |
| b. Home and ambulatory BP measurement | Nihar Mehta |
| c. Intra-arterial BP measurement &
Central aortic pressure measurement | Dilip Kirpalani |

HALL - A

Chairpersons: BB Rewari, Girish Mathur

10.00 a.m. - 10.20 a.m. • ACE - ARB's in Hypertension - What's New **Rabin Chakraborty**

Chairpersons : M. Prabhakar, Krishnangshu Ray

10.20 a.m. - 10.40 a.m. • Beta Blockers - How Relevant **S Mustafa Zaman**

Chairpersons : M.P.S. Chawla, D.P. Singh

10.40 a.m. - 11.00 a.m. • Newer Calcium Channel Blockers **P.K.Sinha**

Chairpersons: C.L.Nawal, J.L.Pungalia

11.00 a.m. - 11.20 a.m. • Diuretics - Which one **Soumitra Kumar**

Chairpersons : Palaniappen, Anupam Prakash

11.20 a.m. - 11.40 a.m. • Chiral Drugs in Hypertension **Mangesh Tiwaskar**

11.40 a.m. - 12.00 p.m. Tea Break

Chairpersons : B.R.Bansode, Ashok Kriplani

12.00 p.m. - 12.20 p.m. **Presidential Address:**
Hypertension: The Past, Present and Future **P.K. Sasidharan**

	<i>Chairpersons</i> : Amal Kumar Banerjee, B.R. Bansode	
12.20 p.m. - 01.00 p.m.	<ul style="list-style-type: none"> • What do we need to know about the new • Lipid lowering drugs? 	Adrian Brady
01.00 p.m. - 01.30 p.m.	UN MEHTA TORRENT ORATION	
	<i>Chairpersons</i> : P.K.Sasidharan, A.N.Rai	
	<ul style="list-style-type: none"> • Non-Pharmacological Management of Hypertension 	Sukumar Mukherjee
01.30 p.m. - 02.00 p.m.	Lunch	
	<i>Chairpersons</i> : Sandhya Kamath, Alaka Deshpande	
02.00 p.m. - 02.20 p.m.	<ul style="list-style-type: none"> • Hypertension and Pregnancy 	R.Chandni
	<i>Chairpersons</i> : Tapas Das, Arun Mujumdar	
02.20 p.m. - 02.40 p.m.	<ul style="list-style-type: none"> • Hypertension in elderly 	Shohael Mahmud Aratab
	<i>Chairpersons</i> : B.B.Thakur, Sekhar Chakraborty	
02.40 p.m. - 03.00 p.m.	<ul style="list-style-type: none"> • Combination Therapy in Hypertension 	Siddharth N. Shah
03.00 p.m. - 03.20 p.m.	Honor Lecture	
	<i>Chairpersons</i> : K.K. Pareek , H.S. Pathak	
	<ul style="list-style-type: none"> • Hypertension and Cardiac Failure 	G.S. Wander
	<i>Chairpersons</i> : Shashank Joshi, R.K.Sahay	
03.20 p.m. - 03.40 p.m.	<ul style="list-style-type: none"> • New Generation Insulins: role of coformulation 	Stephen L Atkin
03.40 p.m. - 04.00 p.m.	Coffee Break	
	<i>Chairpersons</i> : Kamlesh Tiwari, Rajesh Upadhyaya	
04.00 p.m. - 04.30 p.m.	1ST NCH Oration	
	<ul style="list-style-type: none"> • Hypertension issues and challenges 	Pritam Gupta
04.30 p.m. - 05.30 p.m.	PJ MEHTA ORATION	
	<i>Judges</i> : Sanjeev Maheshwari, Pradip Mitra, Sandhya Kamath	
	<i>Chairpersons</i> : R.R. Choudhary, Girdhari Kar	
05.30 p.m. - 05.50 p.m.	<ul style="list-style-type: none"> • Orthostatic Hypotension – newer insight 	Kajal Ganguly
05.50 p.m. - 06.10 p.m.	<i>Chairpersons</i> : Dr Supriya Sarkar ,Dr Ananda Bagchi	
	<ul style="list-style-type: none"> • Obstructive sleep apnoea and Hypertension 	DP Singh
	<i>Chairpersons</i> : J.K. Sharma, Rajinder K.Bansal	
06.10 p.m. - 06.30 p.m.	<ul style="list-style-type: none"> • Blood pressure lowering in acute stroke 	Amit Verma

06.30 p.m. - 06.50 p.m. *Chairpersons* : **Arup Das Biswas, Anup Das**

Debate : Chlorthalidone have an edge over Hydrochlorthiazide

Proponent: **B.N. Jha**

Opponent: **Sunip Banerjee**

Chairpersons : **S. Arulraj, Ghan Shyam Pangtey**

06.50 p.m. - 07.10 p.m. • Young Hypertensive – An Approach

B.R. Bansode

07.10 p.m. - 07.30 p.m. *Chairperson* : **Apurba Mukherjee, CK Jana**

• CANVAS program - A Comprehensive perspective

P.P. Chakraborty

07.30 p.m. - 10.30 p.m. **REDDYS - E - Hypertension**

HALL - A

08.30 a.m. - 09.30 a.m. **Workshop 2: Nutrition**

Chairperson : Dr Bibhuti Saha, Dr Geetaa Shah

- | | |
|--|--------------------------|
| 1. Nutritional transition in Non-communicable diseases | P.K. Bhattacharya |
| 2. Nutritional Deficiencies in Diabetes | Indira Maisnam |
| 3. Nutrition in Obesity | Soumitra Ghosh |

HALL - B

08.30 a.m. - 09.30 a.m. **Workshop 3: Diabetic Foot**

- | | |
|--|----------------------------------|
| 1. Examination of Foot | R. K. Sahay (6 mins) |
| 2. Neuropathy Assessment | R. Bhattacharjee (6 mins) |
| 3. Vascular Assessment | N.K. Soni (6 mins) |
| Discussion (5 mins.) | |
| 4. Diabetic Foot Infection | R. Sahay (6 mins) |
| 5. Different Off-Loading Modalities | G. Goyal (6 mins) |
| 6. Case Studies (maximum 3 cases) – 5 x 3 = 15 mins.
[Neuropathic, Ischemic and Charcot foot] | |
| A. Dr R Bhattacharjee | |
| B. Dr N K Soni | |
| C. Dr R K Sahay | |
| 7. Demonstration of instruments and footwear | G. Goyal (10 mins.) |

HALL - A

Chairpersons : Devi Ram, Partha Sarkar

09.30 a.m. - 09.50 a.m. • Blood Pressure Targets in Diabetic Hypertension **Prabhat Pandey**

Chairpersons : P.P. Mukherjee, Kallol Bhattacharjee

09.50 a.m. - 10.10 a.m. • Spirometry : As routine measuring blood pressure **R.K.Jha**

Chairpersons : Tapas Bandhyopadhyay, Amit Saraf

10.10 a.m. - 10.30 a.m. • Resistant Hypertension.. Management Guidelines **Ashok Taneja**

10.30 a.m. - 11.00 a.m. **Siddharth N. Shah Epidemiology Oration**

Chairpersons : S.V. Kulkarni, Y.S.N. Raju

- | | |
|--|--------------------------|
| • Prevalance of Hypertension in N.E. India | Hemchandra Kalita |
|--|--------------------------|

	<i>Chairpersons</i> : Subhankar Chaudhary, Durga Chakraborty	
11.00 a.m. - 11.30 a.m.	• Are all Gliptins are Same ?	Apurba Mukherjee
11.30 a.m. - 12.00 pm	Honor Lecture	
	<i>Chairpersons</i> : Anita Jaiswal, Jyotirmoy Pal	
	• Hypertension and Dyslipidemia	Y.P.Munjal
	<i>Chairpersons</i> : S.B.Ganguly, Rajendra Pandey	
12.00 p.m. - 12.20 p.m.	• Secondary Hypertension	Ashok Kriplani
	<i>Chairpersons</i> : Robin Maskey, M.Ravikerthy	
12.20 p.m. - 12.40 p.m.	• High Blood Pressure Management in I.C.U.	A.M.Bhagwati
	<i>Chairpersons</i> : Manojit Mukherjee, R.N. Sarkar	
12.40 p.m. - 01.00 p.m.	• Gliptin journey over 10 yrs (MSD)	Jayanta Panda
	<i>Chairpersons</i> : Anup Bhattacharya, Rabikant	
1.00 p.m. - 01.20 p.m.	• Newer concept in management in Heart Faliure	Soumitra Ray
1.20 p.m. - 1.40 p.m.	<i>Chairpersons</i> : Dr Dasharathi Sarkar , Dr Sudhir Mehta	
	• Insulin intensification : Translating evidence into practice	Ashok Kumar Das
01.40 p.m. - 2.00 p.m.	Valedictory Session	
2.00 p.m.	Lunch	

A Comparative Study of the Clinical Presentation & Prognosis of Stroke among Diabetic Vis-À-Vis Non Diabetic Patients

Arun Karmakar, Jafarniyas P, Sharatchandra LK
Regional Institute of Medical Sciences, Imphal

Stroke is a leading cause of mortality and morbidity in India. Diabetes mellitus increases the risk of stroke, and pathophysiological changes of diabetic cerebral vessels may differ in comparison with non-diabetic ones.

Aim: To study the difference in clinical presentation and severity of stroke among diabetic and non-diabetic patients.

Methods: This was a cross sectional study carried out in medicine wards of RIMS, Imphal in 180 patients of stroke (90 diabetic & 90 non diabetic) diagnosed by imaging modality during the period of October 2014 to September 2016. We used Canadian neurological scale for assessing stroke severity at the time of admission.

Results: The mean age of the study population was 65.63 ± 11.37 and the majority were males (57.2%). Prevalence of infarction was more in diabetic cases (81.1% vs 61.1% in non-diabetics, p -value=0.003). Basal ganglia and internal capsule were the most common sites of infarction (34.3%), followed by cortical lacunar (25.8%). MCA territory infarction was significantly higher in diabetics ($p = 0.008$). In diabetic patients with ischemic stroke, there was a higher prevalence of severe stroke ($n = 18/24$, p -value=0.049). Dyslipidemia was found in 61.66% of study subjects with high prevalence in infarction patients [67.96% vs 46.15% in haemorrhagic patients (p -value=0.006)]. There was a significant difference in the mean total serum cholesterol among diabetic and non-diabetic subjects (193.22 ± 56.528 vs 169.02 ± 58.001 , p -value=0.005).

Conclusion: There was a significant high prevalence of infarction in diabetics and hemorrhage in non-diabetics. MCA territory infarction was more common among diabetic ischemic stroke. Among the ischemic diabetic stroke patients, there was a significant high prevalence of severe presentation at the time of admission. Mean serum fasting total cholesterol level was found significantly higher in diabetic patients.

Hypertension and Young Stroke

Hozefa Runderawala
Saifee Hospital, Mumbai

Background and Objectives: Cerebrovascular disease is the most common life threatening neurological disease and is a concern in young patients especially in developing countries. This study aims to identify aetiology, risk factors, clinical presentation and radiological profile of patients presented with stroke between the ages of 15-45 years.

Methodology: 100 patients (68 males and 32 females) were included in the study. Detailed history taking and clinical examination were done and neurological deficits were identified. Other than routine investigations lumbar puncture for CSF analysis, electrocardiography, lipid profile, homocysteine levels and CT scan, MRI Brain were done for all the patients. Other investigations such as echocardiography, Doppler etc were done as clinically indicated.

Result: The sex ratio was 2.12:1 (M: F). the mean age was 36.0 ± 6.58 years and that of male and female patients were 37.94 ± 5.85 and 32.9 ± 6.82 years respectively. Most common risk factors in descending order, Hypertension was seen in 22% cases, diabetes mellitus was the risk factor in 17% cases, hypercoagulability was the risk factor in 12% cases, dyslipidemia in 10% cases and smoking in 8% cases. Brain imaging findings revealed ischemia stroke in 66%, hemorrhagic stroke in 28% cases. Multiple site lesion as seen in embolic stroke were seen in 6% cases.

Most common aetiology was atherosclerosis seen in 40% cases. This was followed by hypercoagulability disorders seen in 12%, cryptogenic stroke in 12%, hypertensive bleed in 9% cases, tubercular meningitis 4%, atrial fibrillation (valvular as well as non-valvular) in 6% cases. Certain uncommon causes like takayasu arteritis, moyamoya disease and neurofibromatosis were also found in our study.

Interpretation & Conclusion: The major risk factors for stroke in young patients were hypertension, diabetes mellitus, hypercoagulability disorders and dyslipidemia. Hypercoagulability disorders are important risk factors and should be thoroughly investigated to prevent a further episode of stroke. Cerebral venous sinus thrombosis is an important cause for stroke commonly seen in women with OCP use. Atherosclerosis is the most common etiology in stroke. Cryptogenic stroke is an important entity in young age stroke and should be dealt seriously to prevent a recurrence and reduce morbidity.

A Study on Short Term Outcome of Stroke in a Rural Tertiary Care Center – Correlation with Different Risk Factors (Hypertension, Diabetes, Dyslipidaemia, Heart Disease)

Sanchita Saha¹, Atul Saha²

¹Assistant Professor Medicine, IPGME&R Kolkata; ²Professor Medicine, KPC Medical College & Hospital

Background: Stroke is the second most common cause of mortality in the world, causing immense morbidity and economic burden . In a developing country like India, where rehabilitative measures are limited, proper knowledge of the factors which influence poor clinical outcome in stroke is utmost important to the clinicians.

Objective: To find out the association of outcome of stroke with different risk factors particularly Hypertension, Diabetes, dyslipidaemia, heart disease e.t.c.

Methods: A descriptive observational design study was formulated for a period of six months on hundred stroke patients in internal medicine unit of at North Bengal Medical College & Hospital, India. Patients were selected after proper screening by inclusion and exclusion criteria. The “In-hospital-outcome” of CVA patient was determined by Glasgow outcome scale. The neurological condition was determined by National Institute of Health Stroke Scale (NIHSS). The Modified Rankin Scale and Barthel Index were utilized to asses disability status of patient in different period of hospital admission. The data were analyzed by EPI INFO software.

Results: Clinical outcome showed statistically significant (P<0.05) correlation with age, sex, blood pressure, diabetes. Other parameters like dyslipidemia, presence of heart disease, smoking, alcoholism, family history, although showed poorer clinical outcome, their correlation was not statistically significant.

Conclusion: In-hospital outcome of stroke as determined by Glasgow outcome scale correlates with diverse clinical parameters including various risk factors.

Comparision of ARBS v/s CCBS on LVH, Biochemical & Side Effects in Hypertensives

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Introduction: Hypertensive heart disease is the result of structural and functional adaptations leading to LVH due to chronically elevated afterload, sympathetic overstimulation and myocardial fibrosis. Aggressive control of hypertension (HTN) can regress LVH and reduce risk of cardiovascular diseases.

Aims & Objectives: To compare the effects of Azilsartan and amlodipine on left ventricular hypertrophy, biochemical parameter and adverse effects in patients of hypertension

Materials & Methods: The study dealt with 120 patients of newly diagnosed essential hypertension patients from the OPD and indoor department of the age of 18 and above according to stage 1 JNC-7 criteria. These patients were randomly divided into two groups one in which ARB'S Azilsartan 40 mg OD dose, and in another amlodipine 5mg in OD doses was administered. ECG, Biochemical parameters and adverse effects were recorded initially and after 6 months of therapy.

Results: The 6 months study revealed significant reduction in Mean Systolic and Diastolic Blood Pressure. The ARB'S Azilsartan lead to a greater regression in LVH than AMLO(15 & 12 patients respectively). It also caused a rise in Serum creatinine, Serum Uric acid and HDL and a significant decrease in Serum Cholesterol, whereas the group taking AMLO showed only a rise in Serum Creatinine. The most common adverse effects observed in Azilsartan group was Diarrhea (8.7 %) Dizziness (5.5%) and in AMLO group was Pedal edema (24%).

Conclusion: In this case study Azilsartan was found to have better efficacy (greater LVH regression), superior tolerability and significant improvement in biochemical parameters.

The Comparative Effects of Azilsartan Medoxomil and Olmesartan on Resting Blood Pressure

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Aims and Objectives: The current study assess the antihypertensive efficacy and safety of investigational angiotensin receptor blocker (ARB). Azilsartan Medoxomil (AZL-M), compared with placebo and the ARB Olmesartan Medoxomil (OLM-M).

Methods: This randomized, double blind, placebo controlled study conducted in Dept. of Medicine, KMCH, Katihar assessed changes from baseline in mean 6 hour sitting systolic blood pressure following 6 weeks of treatment.

Inclusion Criteria: Diagnosis of primary hypertension (defined as sitting through clinic SBP \geq 130 mm Hg and \leq 170 mm Hg) prior to randomization.

Exclusion Criteria:

- DBP > 114 mm Hg
- History of Major Cardiovascular event
- Secondary Hypertension
- Poor compliance during the placebo run in period
- Severe Renal impairment (GFR < 30 ml/min/1.73m²)
- Known or suspected Renal Artery Stenosis
- Type I or Poorly controlled Type II Diabetes

Result: Patient with primary hypertension (n =100) and baseline 6 hour mean systolic sitting pressure \geq 130 mm Hg

and ≤ 170 mm Hg were studied, 20 received placebo and the remainder received 20 mg, 40 mg or 80 mg Azilsartan-M or 40 mg Olmesartan-M. Mean age of participant was 58 ± 11 years baseline mean 6 hour SBP was 146 mm Hg. Reduction in 6 hour mean SBP was greater with AZL-M 80 mg than OLM-M 40 mg by 2.1 mm Hg while AZL-M 40 mg was non inferior to OLM-M 40 mg. The side effects profile of both ARBs was similar to placebo.

Conclusion: Data from this study suggest that AZL-M 80 mg is more effective in reducing SBP than the highest approved dose of OLM-M which was considered to be more effective than other in ARB class.

Prevalence of Metabolic Syndrome in Patients With Essential Hypertension

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Introduction: The metabolic syndrome consist of a constellation of metabolic abnormalities that thought to occur due to insulin resistance and abnormal obesity which confer increase risk of cardiovascular disease and diabetes mellitus. The major features of metabolic syndrome includes central obesity, hypertriglyceridemia, low levels of high density lipoprotein cholesterol, hyperglycemia and hypertension.

Material: The study was a non-interventional, observational study. 172 patients of essential hypertension attending hypertension clinic or indoor department of KMCH, katihar were selected and their investigations were carried out in a fasting state. The metabolic syndrome in these patients was defined by Adult Treatment Panel (III) Criteria.

Inclusion criteria:

- Age between 25-70 yrs
- Blood pressure $>140/90$ mm of Hg

Exclusion criteria:

- age >70 yrs
- age <25 yrs
- Renal failure, hypothyroidism, hyperthyroidism, hypercalcemia, eclampsia

Observations: Prevalence of metabolic syndrome was 55.23% in patients with essential hypertension and more common in females in age group between 40-50 yrs (39.60%). Low high density lipoprotein was most common abnormality detected in patients with metabolic syndrome followed by abnormal fasting blood sugar (FBS), abnormal waist circumference and triglyceride level. The FBS and triglyceride were abnormal in 60.3% and 50.7% female patients. The commonest abnormality in male was low HDL in 87.5% followed by abnormal TG level in 65.62% patients.

Conclusions: Study demonstrated that all patients of essential hypertension should be screened for metabolic syndrome. As the prevalence is more common in younger age group, screening should start at an early age.

Effect of Morning and Bedtime Dosing with Cilnidipine on Blood Pressure in Essential Hypertension

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Introduction: Hypertension is defined as SBP ≥ 140 mm of Hg, and DBP ≥ 90 mm of Hg. Essential HTN is high blood pressure that does not have a known secondary cause and tends to be familial and is likely to be the consequence of an interaction between environment and genetic factors. *Cilnidipine* a 4th generation Calcium channel blocker is a long-acting, unique calcium channel antagonist of the 1,4-dihydro-pyridine type; it has a blocking action against N-type calcium channels in addition to the L-type calcium channel.

Aims and Objectives: The aim was to study the effects of cilnidipine on essential hypertension at morning vs bed time dose .

Method: The study was a non-interventional, observational study. 39 patients with essential hypertension attending hypertension clinic or indoor department of KMCH, Katihar were selected. Patients were started on 5mg once daily dose and blood pressure measured 6hrly using automated blood pressure monitor device. The dose was gradually increased until blood pressure reached optimal value SBP <140 mm of Hg and DBP <90 mm of Hg or until maximum dose of 20mg reached, and all patients monitored for the next 12 weeks.

Inclusion criteria: Age between 50-70 years, SBP: 140 to 179 mm of Hg; DBP: 90 to 109 mm of Hg

Exclusive criteria: Coronary artery disease, stroke, chronic kidney disease, diabetes, pregnant female

Observations: The average final dose of cilnidipine was 11.2 ± 1.5 mg/day. Morning or bed time dosing of cilnidipine reduce the 24hr average, day time average, night time average systolic and diastolic blood pressure.

Conclusion: Cilnidipine was effective as a once daily anti-hypertensive agent. The average final dosing of cilnidipine in this study (11.2 mg /day) is considered efficient to reduce Blood Pressure. Bed time dosing of cilnidipine was found to be more effective than morning dose.

Clinical Study on the Effects of Telmisartan on Hypertensive Patients with Dyslipidemia and Insulin Resistance

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Background: Angiotensin II receptor antagonists are widely used 1st line of treatment in essential hypertension with or without diabetes.

Telmisartan is a unique ARB (angiotensin receptor blocker) as along with RAAS suppression it also shares homology to pioglitazone – a PPAR- γ (a ligand activated nuclear receptor involved in the regulation of aspects of lipid and carbohydrate metabolism).

Materials and Methods: The study was done in the Medicine department of Katihar Medical College after approval of institutional ethics committee for a study period of 24 weeks. Patients meeting the inclusion/exclusion criteria, assigned randomly into one of the study groups (Ramipril 5mg/d(n=38), Telmisartan 40 mg/d(n=32) given orally.

Results: In the telmisartan group significant difference was noted in weight, body mass index, fasting blood glucose, systolic and diastolic blood pressure, and triglyceride.

In the Ramipril group a reduction in triglyceride, weight and body mass index was found, with no significant reduction in Fasting blood glucose.

Conclusion: Telmisartan not only controls blood pressure steadily and effectively, but also decreases blood triglycerides, increases HDL cholesterol and improves glucose metabolism.

Lipid Profile of Smokers Suffering from Hypertension: A Hospital Based Prospective Study

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Introduction: Smoking in different forms is a major risk factor for atherosclerosis and coronary artery disease and is associated with hypertension. Cigarette smoking elevates blood pressure levels by 5-10 mm Hg during the day. It also leads to increase in the concentration of serum total cholesterol, triglycerides, LDL-cholesterol, VLDL and fall in the levels of antiatherogenic HDL cholesterol.

Materials and Methods: This was a prospective case control study carried out in a tertiary care hospital in Sikkim for a period of one year. This study was done with an aim to determine the alterations in plasma fasting total cholesterol, triglycerides, HDL and LDL cholesterol and BMI in a group of smokers with hypertension who were compared with a group of non-smokers with hypertension matched for age and sex. Data of the patients were collected based on a pretested structured proforma. A total

of 182 patients were enrolled in the study out of which 97 patients were smokers and 85 patients were non-smokers. The analysis of the data was done using ANOVA and Odd's ratio.

Results: In this study a statistically significant difference was found in BMI (P=0.01), total cholesterol (P=0.04) and LDL cholesterol (P<0.001) values between smoker and non-smoker groups.

Association of ACE and ACE-2 gene polymorphism with Essential hypertension

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Essential hypertension (EH) is a complex disease influenced by genetic and environmental factors. The Renin-Angiotensin-Aldosterone system (RAAS) is an important regulatory system for maintaining normal blood pressure (BP) and electrolyte balance. Angiotensin converting enzyme (ACE) plays a key role in RAAS pathway. ACE-2, a new RAAS component has been found to play a protective role in BP homeostasis. We have undertaken the study to investigate the association of ACE I/D and ACE-2 rs2106809 genetic polymorphism along with different environmental factors in EH among native population of Odisha, India.

Material and Methods: The present study was carried out at VSS Institute of Med. Science and Research, Burla and ICMR, Bhubaneswar during 2014 – 2016. 524 patients were enrolled in this study. Of them 250 patients were with EH and rest 274 were normal population as control. Detailed anthropometric data, tobacco, alcohol, and food habits were recorded and 10 ml of venous blood was collected for biochemical and genetic analysis. The genomic DNA was extracted and PCR amplification was performed with appropriate forward and reverse primer with appropriate cycling condition. ACE-2 polymorphism was analyzed separately among males and females because of its localization on the X- chromosome. Statistical analysis was done with SPSS version-17.

Results: Out of 250 patients there were 160 males and 90 females. The banding pattern of ACE I/D revealed 3 genotypes e.g. II (Insertion/insertion), DD (Deletion/Deletion), and ID (Insertion/Deletion). It has been found that DD genotype was found higher in hypertensives compared to normotensives (17% Vs. 8%, p<0.001) where as I/D polymorphism was found more in normotensives (50% Vs 44%, p<0.01). In females, I/D polymorphism was significantly associated with hypertension. ACE-2 rs2106809 polymorphism was found significantly more in females than male hypertensive (p=0.013). Combined genetic analysis showed that ACE DD + ACE-2 rs2106809 TT was found to be higher in female subjects (p=0.048). Analysis also showed that tobacco use, alcohol consumption, and hypertriglyceridemia are independent risk factors for hypertension.

Conclusion: ACE I/D and ACE-2 rs2106809 polymorphism are associated with female hypertensives. In male hypertensives ACE-2 polymorphism and alcohol consumption are associated with EH in the study population.

Association of Angiotensinogen (AGT) Gene Polymorphisms among Patients with Essential Hypertension

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Essential hypertension (EH) is a complex disease influenced by genetic and environmental factors. The Renin-Angiotensin-Aldosterone system (RAAS) has a central role in maintaining normal blood pressure (BP). Angiotensinogen (AGN) is the substrate for RAAS pathway. In humans, AGT gene is present in 1q42-43 locus and 3 single-nucleotide polymorphism (SNPs) have been observed to be associated with serum AGT level which may affect EH. Therefore, we have undertaken the study to investigate the association of M235T, T174M, and G-6A SNPs of AGT gene along with different environmental factors in EH among native population of Odisha, India.

Material and Methods: The present study was carried out at VSS Institute of Med. Science and Research, Burla and ICMR, Bhubaneswar during 2014 – 2016. 504 patients were enrolled in this study. Of them 250 patients were with EH and rest 254 were normal population as control. Detailed anthropometric data, tobacco, alcohol, and food habits were recorded and 10 ml of venous blood was collected for biochemical and genetic analysis. The genomic DNA was extracted and PCR amplification was performed with appropriate forward and reverse primer with appropriate cycling condition for M235T, T174M, and G-6A polymorphisms. Statistical analysis was done with SPSS version-17.

Results: Out of 250 patients there were 160 males and 90 females and 160 males and 94 females in the control group. The mean age of patients was 49.47 ± 10.38 years and of control was 48.82 ± 9.76 . In males, M allele of M235T ($p < 0.001$), G allele of G-6A ($p = 0.001$) and alcohol consumption ($p < 0.001$) and in females, the T allele of M235T ($p = 0.005$) and M allele of T174M ($p = 0.003$) were significantly higher in patients than controls. Linkage disequilibrium (LD) and haplotype analysis showed that all the 3 polymorphisms are in LD, and the strongest linkage was between M235T and T174M (total population: $D' = 0.8822, p < 0.001, r^2 = 0.4498$; males $p < 0.001$ and females $p = 0.0012$). The TMG haplotype in total population ($p = 0.0039$) and females ($p = 0.0039$) and the MTG haplotype in males ($p = 0.0042$) were identified as risk haplotypes.

Conclusion: AGT gene polymorphisms are found to exert gender specific effect on blood pressure and hypertension pathology.

Aldosterone Synthase (CYP11B2) C-344T Gene Polymorphism in Essential Hypertension

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Introduction: Essential Hypertension (EH) is a complex multifactorial disease. Salt retention has been considered as a pathogenetic mechanism of hypertension. Aldosterone mediates sodium balance and arterial pressure by influencing intravascular volume and arterial thickness. Aldosterone synthase gene (*CYP11B2*), encodes for a cytochrome P450 enzyme, involved in the terminal step of aldosterone synthesis. Mutation of -344(C-->T) in promoter region upregulates aldosterone production causing EH. In the present study, we investigate C-344T polymorphism of Aldosterone synthase gene in the population of Odisha, India.

Material and Methods: The present study was carried out at VSS Institute of Med. Science and Research, Burla and ICMR, Bhubaneswar during 2014 – 2016. A total of 246 hypertensive subjects (159 male and 87 female) and 274 healthy control (158 males and 116 females) were enrolled. The diagnosis of Hypertension was made according JNC-7 criteria. Blood was collected for detail biochemical, hematological investigations and aldosterone level. The genomic DNA was extracted from the whole blood using phenol-chloroform method and *CYP11B2* C-344T polymorphism was determined by PCR-RFLP.

Results: The aldosterone level in hypertensives are higher than non-hypertensives (330.9 ± 103.6 pmol/L vs 271.4 ± 126.7 pmol/L, $p < 0.001$) The frequencies of TT, TC, and CC genotypes were found in 51.5%, 39.7%, and 8.9% among hypertensives compared to 72.9%, 39.7%, and 1.9% among normotensives respectively and all were significant ($p < 0.001$). Comparison of both male and female hypertensives and normotensives also showed significant differences ($p < 0.001$). Univariate analysis showed that the polymorphism was associated with hypertension in the entire population in dominant, recessive, and additive models.

Conclusion: The present study showed that aldosterone level is high among patients of EH. CT and TT genotype of C-344T of Aldosterone synthase gene polymorphism was found in this population.

Comparative Evaluation of Efficacy of Clinidipine vs Amlodipine in Mild to Moderate Hypertension with Emphasis on Proteinuria

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Background: Hypertension is the one of the most common diseases diagnosed in India while the prevalence varying in different ethnic and age groups. In India alone about

30% of the population is suffering from Hypertension. We investigated the efficacy and safety profile of amlodipine and cilnidipine while studying the effects on proteinuria and pedal Edema in patients with mild to moderate hypertension with mild renal disease; in a tertiary level Hospital in Dehradun.

Methods: We conducted an observational study with a sample size of 50 patients (26 men and 24 women) within the age group of 48-63 years; with mild to moderate hypertension and mild renal disease (S Creatinine <3mg/dl) who had been maintained on CCB's for > 6 weeks were included in the study. Patients with advanced renal disease and severe hypertension (BP>180/100mmHg) were excluded from the study.

The Aim was to study the Effects of the two drugs on the systolic and diastolic BP along with the safety profile of the two drugs and the Renoprotective effect by either of them. First group of 23 patients were on cilnidipine 10-20 mg/day and second group of 27 patients were on amlodipine in dose of 5-10 mg/day; ARB's (Telmisartan 40mg/day) was added as required for BP control. Patients were evaluated at timely intervals. BP/HR Monitoring was done every day for the first 5 days and then once every 15 days. Every 3rd and 6th month the concentrations of urine protein, urine albumin, serum and urine creatinine (Cr), and serum β 2-microglobulin were determined.

Results: The SBP in the Amlodipine group Post Rx was 140 ± 10.9 in the amlodipine group and 143 ± 6.2 in the cilnidipine group and DBP 79 ± 7.0 and 82 ± 6.0 indicating no significant difference in either of the groups. The mean blood pressure remained in the 100-106mmHg range until 6 months. The rate of increase in proteinuria at 6 months was 87% of the baseline value with amlodipine and 4% of baseline with cilnidipine, a significant intergroup difference. 6(26.08%) patients ever complained of pedal edema while 19(70.37%) patients in the amlodipine group had complaints of pedal edema.

Discussion: Both amlodipine and cilnidipine have shown equal efficacy in reducing blood pressure in hypertensive individuals. These results suggest that cilnidipine results in a greater suppression of the increase in proteinuria and greater reduction in glomerular filtration rate than amlodipine, resembling the action that of RA inhibitors. But cilnidipine being N-type and L-type calcium channel blocker, associated with lower incidence of pedal edema compared to only L-type channel blocked by amlodipine.

Risk Factors for Non-Dipping Pattern in Newly Detected Young Hypertensive Patients

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Object of the Study: A 'non-dipping' blood pressure profile is currently regarded as a risk factor in its own for cardiovascular events and target organ damage. We studied 24 hour blood pressure by ambulatory blood pressure

monitoring (ABPM) and risk factors of non-dipping pattern in newly detected young hypertensive patients.

Methodology: It is a cross sectional observational study done in newly detected young hypertensive patients who came outpatient department of NIM'S, tertiary care center. We compared dippers and non dippers in various parameters to identify the risk factors associated with nondipping pattern.

Summary: A total of 46 patients were included in this study between age group of 18 years to 39 years. Among the total subjects 8(17%) had secondary hypertension (6 had renal parenchymal disease, 1 had Takayasu, 1 had hyper eosinophilic syndrome). Among the total subjects, 30(65.2%) have dipping pattern and remaining 16(34.8%) have non-dipping pattern. Diabetes, hypo-thyroidism, chronic kidney disease were significantly higher in non-dippers ($p < 0.05$). Haemo-globin and serum albumin levels were significantly low in non-dippers ($p < 0.05$). There was no significant difference in BMI, lipid profile, liver function tests between dippers and non-dippers.

Conclusion: The present study highlighted the importance of measuring the ambulatory BP monitoring in identifying non-dipping pattern and its risk factors.

Study of Prognostic Significance of Acute Systolic Hypertension after Myocardial Infarction (MI)

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Aims and Objective: To observe the presence of systolic hypertension after MI in previously normotensive patient or unestablished hypertension and To assess its prognostic significance after acute MI

Methods: The patients for this study will be taken from the S.K.M.C.H, Muzaffarpur, Bihar. In this study the patients aged >40 years with acute MI were included & divided into two groups. Test group included 50 patients finally diagnosed as a case of acute MI with systolic hypertension at the time of admission & 30 normotensive patients diagnosed as a case of acute MI were taken as control.

Results: Total number of deaths recorded in test group was 18(36%) and in control group only 8 (26.66%) were recorded. Thirty three (33) out of fifty (50) cases in the test group were found to have previous history of hypertension, while rest had no such history of hypertension. The incidence of cardiac failure, major arrhythmias and mortality in the test group was 18%, 32% and 36% respectively which was higher than that found in the control group and they lose 16.66%, 16.66% and 26.66% respectively. 7 mmHg increase in blood pressure over baseline increased risk of cardiovascular disease by 27%. Student's 't' test and probability (p) value for systolic blood pressure when compared statistically for the test and control group proved to be highly significant (< 0.001).

Conclusion: The present study shows that, development of acute systolic hypertension after acute MI increases the risk of cardiac arrhythmia and heart failure and influences the prognosis adversely.

Association of High Sensitivity C – Reactive Protein and Vitamin D Deficiency in Hypertensive Patients

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Object of the Study: Vitamin D is currently of great public health interest, because vitamin D deficiency is common and is causally associated with musculoskeletal diseases. We studied the association of low vitamin D levels and hsCRP in hypertensive south Indian population

Methodology: It is a cross sectional observational study done in hypertensive patients who came outpatient department of NIMS, tertiary care centre. We compared hsCRP levels and Uric Acid in Vitamin D deficient and normal Vitamin D level hypertensive population.

Summary: A total of 203 patients were included in this study with a mean age of 54.4 ±9.2. Among the hypertensive's vitamin D deficient hypertensive's (cases) were 134 (66.00%) and with normal Vitamin D levels (controls) were 69 (33.99%). The mean hsCRP levels among cases and control is 5.2±4.1 mg/l and 5.5±4.8 mg/l with a p value of 0.678. The mean uric acid levels among cases and control is 5.1±2.2 mg/dl and 5.2±2.2 mg/dl respectively with a p value of 0.791. There was no significant differences in systolic and diastolic blood pressures, BMI, lipid profile among cases and controls. There is negative correlation found between the vitamin d and hsCRP ($r = -0.080$). As the vitamin d level DECREASES, hsCRP is INCREASED but this association is found statistically insignificant ($p = 0.319$).

Conclusion: The present study highlighted the importance of Vitamin D deficiency and the role in inflammatory processes such as atherosclerosis leading to hypertension.

The Effects of Smoking in Developing Hypertension

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Background: Globally, hypertension is considered one of the most important preventable causes of morbidity and mortality. This paper aims to examine the effects of smoking in developing hypertension. The present study suggests that a positive harmful relationship exists between blood pressure and smoking and that smokers are more likely to develop high blood pressure compared to non-smokers.

This study was carried out at Rohilkhand Medical College and Hospital, who attended outpatient department

from May 2016 to January 2017 among 200 hypertensive patients.

Results: Prevalence of hypertension was higher (23.5%) in smokers than non-smokers (16.4%). Smoking showed significant correlation with systolic blood pressure, diastolic blood pressure and mean arterial pressure at $p \leq 0.01$. Smoking is a significant cause of elevation in blood pressure. Family history of tobacco plays significant role in adopting smoking habit.

Conclusion: The study highlighted that the knowledge and lifestyle modification, their linkage with hypertension and compliance to the treatment regimen are important considerations in reducing the unhealthy effect of smoking in developing hypertension. The review revealed the harmful relationship between blood pressure and smoking and that smokers appeared more likely to develop high blood pressure in comparison with non-smokers. The study strongly recommends that to identify the hypertension associated risk factor, the knowledge and awareness programme needs to be suggested at both local and national health levels, in partnership with different governments, non-governments and external development partners to prevent or minimise the potential adverse effects that can be caused by smoking.

A Study on Obesity Related Hypertension and Its Awareness Among the People

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Background: In the study it was aimed to evaluate the prevalence of obesity and awareness of relation with the hypertension among hypertensive study population.

Method: This study was carried out at RMCH, who attended outpatient department from May 2016 to January 2017 among 600 hypertensive patients.

Results: Out of 600 patients, majority of patient's age was less than 55 years i.e. 64%. Females constitute majority of study population i.e. 61%. In our study, people with BMI more than 25 more prone to hypertension. Majority of patients are illiterate i.e. 68.7%. Majority (89%) are aware that excess salt and lack of exercise constitute major risk for developing hypertension. Majority patients among hypertensives were aware that they were more prone to heart damage.

Conclusions: Blood pressure is an important modifiable risk factor for cardiovascular, kidney diseases and stroke. The awareness regarding hypertension and its relation with obesity is very poor amongst patients and normal people. Through this study we identified areas of importance to be considered by awareness programs. People should be educated on the risk factors, presenting features and complications of hypertension. This is possible through awareness programme. Shefali Anne, Sasi Shekhar TVD. A study on obesity related hypertension and its awareness among the people.

Hypertension in Young

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Hypertension is a silent killer disease. It remains a major problem affecting 76 million, or approximately one third, of adults. While more prevalent in the older population, an increasing incidence in the younger group, including athletes, is being observed. Active individuals, like the young and athletes, are viewed as free of diseases such as hypertension. However, the increased prevalence of traditional risk factors in the young, including obesity, diabetes mellitus, and renal disease, increase the risk of developing hypertension in younger adults. Anxiety & Psychosocial factors may also be contributing factors to the increasing incidence of hypertension in the younger population. Increased left ventricular wall thickness and mass are increasingly found in young adults on routine echocardiograms and predict future cardiovascular events. This increasing incidence of hypertension in the young calls for early detection and prompt treatment to prevent future cardiac events. Apart from Renal other causes like cohn's disease, pheochromocytoma, cushing syndrome, Acromegaly & Thyroid disorders are other major aetiological factors.

Study of Serum Insulin Levels in Hypertensive Subjects

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Introduction: The patients with essential hypertension are increasing all over the world. There may be development of insulin resistance and hyperinsulinemia in essential hypertension. An association between essential hypertension and defective insulin secretion has been identified. Insulin resistance is the fundamental defect in the development of type 2 diabetes mellitus, hypertension and cardiovascular disease.

Methods: We studied fifty patients, 30 patients suffering from hypertension and 20 healthy controls (age and sex matched). The subjects for the present study were grouped as follows viz. Group1: healthy controls (20)

Group 2 : Patents suffering from hypertension (30)

(a) Non obese hypertension patients (n=15) (b) Obese hypertensive patients (n=15)

Results: Current study reveals that essential hypertension has positive and significant relationship with fasting serum insulin level and insulin resistance

Conclusions: Our cross sectional study reveals that incidence of insulin resistance is higher in essential hypertensive (more in obese compared to non obese) subjects comparison to controls.

Hypertension Among Subjects Referred for Health Check-up in a Tertiary Care Hospital

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Introduction: Hypertension is reported to be the fourth contributor to premature death in developed countries and seventh in developing countries. In india the prevalence of hypertension has increased in both urban and rural populations and presently is 25% in urban adults and 10-15% among rural adults population.¹ The aim of the present study was to determine the occurrence of hypertension and associated co-morbidities among subjects referred for health check-up and its correlation with different biochemical parameters.

Methodology: The present study was conducted among 1828 subjects referred for health check-up at Max Super Speciality Hospital, Ghaziabad. Hypertension was classified as per JNC-7 guideline.² Subjects were divided in five groups- Group A Normal (BP < 120/80 mmHg). Group B Prehypertension (BP 120-139/80-89 mmHg without antihypertensive drug). Group C. Controlled hypertension (BP < 140/90 mmHg, with antihypertensive drugs), Group D: Uncontrolled hypertension (BP ≥ 140/90 mmHg with antihypertensive drugs) and Group E Newly Diagnose hypertension (BP ≥ 140/90 mmHg with no history hypertension). Twelve hour fasting blood sugar, Hb, S. creatinine, lipid profile and liver enzymes were done. The upper limit of total cholesterol, TG, LDL cholesterol, HDL cholesterol was defined as ≥ 240, ≥200, ≥160 and ≤ 40 mg/dl Data was analysed using SPSS 16.0 and P<0.05 was considered as statistically significant.

Results: Out of 1828 subjects (male: 1160, female 668). 24.07% were hypertensive with mean age (yrs) and BMI of 47.33 ± 11.97 and 28.23 ± 4.64 respectively. Around one fourth of the subjects had normal BP and majority were prehypertensive (table 1). In present study 13.51% had diabetes, 28.23% had family history of CAD, HT, DM and one fourth had habit of smoking and alcohol consumption. Out of 1828 subjects, 13.51% had abnormal blood sugar level above 126 mg/dl and 27.41% were obese. High prevalent of dyslipidemia and abnormal liver enzyme was found in hypertensive patients than normotensive (Dyslipidemia: 14.38% vs 10.72; Liver Enzymes: 6.13% vs 3.88%)

Subjects	Normal	Prehypertension	Hypertensive (24.07%)		
1828	486 (26.59%)	902 (49.34%)	152 (8.32%)	99 (5.41%)	189 (10.34%)
Diabetes		5.85%	3.67%	2.90%	1.09%

Conclusion: In the present study the prevalence of hypertension was 24.07%. The newly diagnosed hypertension was present in 10.34% abnormal blood sugar was present in 13.51% of populations. High prevalent of

dyslipidemia and abnormal liver enzymes was found in hypertensive patients.

NAFLD & HTN in First Degree Relatives of those with NAFLD

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Non Alcoholic Fatty Liver Disease (NAFLD) includes a spectrum of hepatic pathology that resembles alcohol-induced liver disease but develops in individuals who deny a significant history of alcohol ingestion. NAFLD comprises a wide spectrum of liver damage, ranging from simple macrovesicular steatosis to steatohepatitis, cirrhosis and hepatocellular carcinoma. The prevalence of NAFLD has doubled during last 20 years, whereas the prevalence of other chronic liver diseases has remained stable or even decreased. Moreover with increasing incidence and prevalence, the perception of NAFLD being a benign condition of little clinical significance is rapidly changing. Obesity, metabolic syndrome, type 2 diabetes (T2DM) and dyslipidemia are predisposing factors for NAFLD. All these are directly linked with diet and lifestyle of an individual and hence preventable and modifiable. The study was conducted to identify the prevalence of NAFLD among the first-degree relatives of a patient already diagnosed with NAFLD. The study demonstrated the increased prevalence of NAFLD among the family members. Further risk factor analysis in the study strengthened the role of diet and lifestyle in the aetiology of NAFLD. But the prevalence of hypertension was almost equal in the NAFLD group and Non-NAFLD group.

Prevalence and Associated Factors of Prehypertension and Undiagnosed Hypertension Among Rural Population of Kozhikode District

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Hypertension is a risk factor for cardiovascular morbidity and mortality; even prehypertension is a risk factor for these diseases, and identifying them can help in early intervention like lifestyle and diet modification. The study was conducted to estimate the prevalence, risk factors, and co morbidities of prehypertension and hypertension in a rural area of Kozhikode district. It was a cross sectional study and the study population was selected by simple random sampling. Out of 300 participants, 51.3% were males, 48.7% were females and mean age was 42.13 years. 43.3% were normotensives, 29.3% were prehypertensives and 27.3% were hypertensives. Out of 82 hypertensives, 54.9% were already diagnosed hypertensives, of which

91.1% were on treatment, in which only 46.3% had controlled BP. 12.3% were newly diagnosed hypertensives during the study. Both prehypertension and hypertension were significantly associated with increasing age, low income, low socioeconomic status, smoking, added salt use, family history of hypertension, physical inactivity, BMI >23 and increased waist circumference. Hypertension was also associated with female sex, low educational status, sedentary work, fast food, stress, diabetes, dyslipidemia. Prevalence of prehypertension and hypertension was high in the population. Health education alone was advocated to the identified pre hypertensive people aiming to prevent or delay the onset of hypertension and its complications.

Prevalence of Prehypertension and Hypertension and Associated Cardiovascular Disease Risk Factors among Asian Indian Children & Adolescents

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Background: In India, only a few studies have been undertaken to investigate the prevalence of cardiovascular disease (CVD) risk factors among children and adolescents. Most of the studies carried out on the adult population.

Objectives: The present cross-sectional study was aimed to find out the prevalence of prehypertension and hypertension and investigate the association of high blood pressure with associated cardiovascular disease (CVD) risk factors in urban, suburban and rural children and adolescents.

Materials and Methods: This study was carried out among 741 (376 boys and 365 girls) children and adolescents, aged 10 to 15 years from 12 high schools situated in rural, suburban and urban areas in West Bengal, India. Anthropometric measurements, such as stature, body weight, circumferences at mid arm (MUAC), minimum waist (MWC) and maximum hip (MHC), skinfolds at biceps (BSF), triceps (TSF), sub scapular (SSSF) and supra iliac (SISF) regions etc., were measured using standard methodology. Systolic (SBP) and Diastolic (DBP) blood pressure were recorded according to a proper methodology. Lipid profiles, such as total cholesterol (TC), triglyceride (TG), high (HDL), low (LDL), very low-density lipoprotein (VLDL), and blood glucose were also measured from each participant. A schedule was used to collect data on the socio-demographic profile, birth records, behavioural activity, weekly physical activity and family history of hypertension. The weekly consumption of food was collected using a food frequency schedule.

Results: The urban participants have higher mean values of weight, stature, body mass index (BMI), minimum waist circumference (MWC), maximum hip circumference (MHC) and waist-hip ratio (WHR), but significantly, mean values of systolic blood pressure (SBP) & diastolic blood

pressure are almost similar in participants from different habitat variation. No significant sex difference is observed for SBP and DBP. Mean values of blood sugar and lipid profile are slightly higher in the urban participants in comparison with the suburban and rural participants. The family history of hypertension, physical inactivity, and faulty food habits was found to be significant association with hypertension in the participants.

Conclusion: The study showed that the prevalence of prehypertension and hypertension and other related cardiovascular disease risk factors were high in both urban, sub urban and rural participants. Since hypertension starts mid and late adult age in life, the cardiovascular morbidity & mortality will be enormous in later life of the participants, if these trends continue. Prevention should begin during early ages in life, when a modification in lifestyle can reduce the incidence of cardiovascular disease. Therefore, there are need an effective preventive strategy and health awareness programs at local & national level, targeting the children & adolescent to encourage and improve their unhealthy life style, so that they do not become the epidemics of the 21st century.

Resistant Hypertension

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Failure to achieve goal BP (<140/90 mmHg) using 3 different drugs with pharmacologically complementary mechanisms, one of which is an appropriately dosed diuretic.

All three drugs given in maximally tolerated doses. Failure to control blood pressure (BP) inevitably heralds renal deterioration as well as accompanying increases in cardiovascular morbidity and mortality.

CKD itself is a predictor of cardiovascular events as a result of failure to achieve adequate BP control.

BP control should be a role in management of CKD & diabetes mellitus.

A resistant hypertension in CKD & DM, results poor prognosis, high mortality, more prone to terminal cardiovascular events.

From time to time, various committees has described resistant hypertension in different definitions. All refractory hypertension should not be taken as refractory hypertension, as pseudorefractory & secondary hypertension may also simulate in one way or other. Even white coat hypertension should be clearly separated before putting a level of resistant hypertension.

Compared with patients with white-coat hypertension, true resistant hypertension is associated with male gender, longer duration of hypertension, smoking, diabetes, target-organ damage (as measured by presence

of LVH, impaired renal function, microalbuminuria, documented CVD.

All of these associations are *weak*. Demographics have a low discriminating value for the diagnosis of resistant hypertension.

ABPM is desirable for correct diagnosis and management.

For true resistant hypertension along with available drugs (excluding secondary hypertension, and ensuring normal renal functions), renal denervation should be considered when both kidneys are normal in terms of anatomy, vasculature without stenosis/stenting of both renal arteries.

Cardiovascular Risk Factors Central Obesity, Stress and Sedentary Lifestyle are more Prevalent in Subjects with Prehypertension than Normotensive Individuals

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Background: Hypertension is associated with metabolic and phenotypic abnormalities. Recently, even prehypertension has been associated with metabolic and atherosclerotic alterations. However, there is no specific study from India on prevalence of various cardiovascular risk factors in adult subjects with prehypertension. The present study aimed to determine prevalence of various cardiovascular risk factors in prehypertensive and normotensive individuals aged ≥ 18 years.

Methodology: Cardiovascular risk factors were studied in 100 prehypertensive subjects and compared with equal number of normotensive subjects. Obesity (BMI), Central obesity (Waist circumference), glycemic status, lipid levels, lifestyle/ physical activities and stress/ mental health status were evaluated in both groups.

Results: Prehypertensive subjects had greater prevalence of elevated waist circumference (79% vs. 21%), sedentary lifestyle (46% vs. 14%) and mental stress (35% vs. 18%) than normotensive subjects ($p < 0.05$). Lipid parameters and glycemic status did not differ between the two groups.

Conclusion: Central obesity, mental stress and sedentary lifestyle are significantly elevated in prehypertensive population as compared to normotensive population.

The presence of these factors in prehypertension subjects stresses on the need for early detection of these patients. Preventive strategies should be targeted at this population subset so that progression to hypertension can be prevented and cardiovascular risk mitigated.

Efficacy of ACE inhibitors vis-a-vis ARBs (with or without Hydrochlorothiazide) in Achieving 24 Hour Blood Pressure Control

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Introduction: Angiotensin receptor blockers (ARBs) have similar efficacy to angiotensin converting enzyme inhibitors (ACEIs), but have better tolerability. Although recommended as once daily dosing, the actual therapeutic effect may last less than 24 hours. The present study aimed to determine if 24 hour control is achieved with enalapril and losartan with/without hydrochlorothiazide (HCTZ) in essential hypertension.

Method: A convenient sample of 200 hypertensive patients was studied; 100 on enalapril 5 mg ± HCTZ 12.5mg OD (Group 1) and 100 on losartan 50 mg ± HCTZ 12.5 mg OD (Group 2). Patients having diabetes, coronary artery disease and cerebrovascular disease were excluded. ABPM apparatus was placed for 24 hours and average 24-hour, awake-time and sleep-time readings were recorded. Subgroup analysis was also performed-subgroup 1a-Enalapril, subgroup 1b-Enalapril+HCTZ, subgroup 2a-Losartan, subgroup 2b-losartan+HCTZ. Unpaired Student's t-test and ANOVA were used for statistical analysis.

Results: The demographic profile, average 24 hour BP, daytime BP and night time diastolic BP were comparable between the two groups and all the subgroups. Group 1 (Enalapril ± HCTZ) had higher night time systolic BP than Group 2 (losartan ± HCTZ) (122.50±14.73 mm Hg vs 118.62±11.53 mm Hg, p=0.04). Blood pressure in the last 4 hours of dosing interval was higher than blood pressure in the remaining 20 hours of the day in both losartan and enalapril groups. However, the subgroups 1b and 2b (both subgroups with hydrochlorothiazide) had comparable BP in the last 4 hours and the remaining 20 hours.

Conclusion: Losartan helps lower night time systolic BP better than enalapril. Addition of hydrochlorothiazide to losartan as well as enalapril helps achieve 24 hour BP control, which in the absence of hydrochlorothiazide has a tendency to surge in the last 4 hours of the dosing interval.

Association of Serum Testosterone with Hypertension in Type 2 Diabetic Males

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Introduction: The aim of this study is to determine the testosterone levels in type 2 male diabetics (T2DM) & to see its association with (a) hypertensive & (b) normotensive type 2 diabetic males.

Materials: Cross sectional study was conducted in 80 T2DM subjects with duration of diabetes ≥ 5 years and

age between 35- 65 years. A comparison group of age matched 80 non diabetics was taken. Patients with type 1 diabetes and other risk factors known to cause gonadal insufficiency (CLD, pituitary adenoma) were excluded.

Observations: Serum testosterone level in T2DM was lower than non-diabetic subjects (341.11±177.63 vs 435.97±149.69; p <0.001). 30% (n=24) of T2DM subjects had low serum testosterone. 18 subjects of T2DM had hypertension out of these 18 subjects 11 had low Serum testosterone level.

Conclusion: Low serum testosterone levels were found in about one third of T2DM subjects. More than 50% of subjects with low serum testosterone were hypertensive. Hence it will be pertinent to watch diabetic patients with hypertension for quality of life & serum testosterone levels.

Association of Serum Uric Acid Levels with Various Hypertensive Groups Among Subjects Referred for Health Check up in a Tertiary Care Hospital

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Introduction: Serum uric acid (SUA) has been shown to, be strongly associated with hypertension. Elevated UA independently predicts development of future hypertension and subsequent cardiovascular events. The aim of the present study was to determine the association of Serum Uric Acid levels with various hypertensive groups among subjects referred for health check up in a tertiary care hospital

Methods: A total of 1158 subjects came to our hospital for the health check up. The subjects were divided into three groups according to JNC 7 Guideline: Group A: Normotensive (<120/80 mmHg), Group B: Prehypertension (120-139/80-89 mmHg) and Group C: Hypertension (>140/90 mmHg). Hypertensive groups were further divided into three categories: Controlled subjects (BP<140/90 mmHg, with hypertensive drugs), Uncontrolled subjects (BP > 140/90 mmHg, with hypertensive drugs) and newly diagnosed subjects (BP> 140/90 mmHg, with no history of hypertension). Twelve hour fasting serum uric acid was done.

Results: The mean age (yrs) and BMI among the three groups were 46.69±10.73, 47.17±10.67, 54.21±8.51 and 27.59±4.47, 28.28±4.60, 29.01±4.06 respectively. The mean SUA±SD value among Group A, Group B and Group C were 5.14±3.22, 6.03±3.35 and 5.99±1.40 respectively. Prevalence of hyperuricemia among female subjects (SAU> 6.0mg/dl) was 11.90% while in male subjects (SAU> 6.8 mg/dl) was 28.85%. Further division of hypertensive groups was done as controlled, uncontrolled and newly diagnosed hypertensive and it was found that slightly high SUA were in controlled hypertensive as compared to

newly diagnosed and uncontrolled hypertensive subjects (5.95±1.36, 5.73±1.32 and 5.92±1.78).

Parameters	Group A: Normotensive	Group B: Prehypertension	Group C: Hypertension	P value
No. of Subjects	271	505	382	
Age(yrs)	46.69±10.73	47.17± 10.67	54.21±8.51	0.004
BMI	27.59±4.47	28.28±4.60	29.01±4.06	0.01
SBP (mmHg)	108.75±3.53	127.09±4.54	128.64±3.94	0.0001
DBP (mmHg)	77±7.97	81.66±7.76	82.40±7.47	0.0001
S. Uric Acid(mg/dl)	5.14±3.22	6.03±3.35	5.99±1.40	0.003

Parameter	Hypertensive Subjects		
	Controlled	Uncontrolled	Newly diagnosed
	89	99	194
S. Uric Acid (mg/dl)	5.95±1.36	5.73± 1.32	5.92±1.78

Conclusion: It was found that the mean value of SUA was significantly higher in prehypertensive group as compared to hypertensive and normotensive groups. High prevalence of SUA was found in the controlled hypertensive as compared to uncontrolled and newly diagnosed hypertensive subjects.

Study of Trends in Non-Communicable Disease with Special Reference to Hypertension Among Beneficiaries of Esic Scheme in Pondicherry

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Introduction: The incidence and prevalence of Non-Communicable Disease (NCD) among the beneficiaries of ESIC scheme are on the rise in consonance with similar rise elsewhere, as evident from the increasing number of new NCD registrations at the OPDs of various dispensaries. However the exact or approximate burden of the disease is not completely known due to lack of systematic studies. ESIC beneficiaries are those who are covered under the Employees State Insurance Corporation Act. In Pondicherry they form a substantial part of the total population (*vide infra*). The rise in NCD among these patients is cause for concern as they are working in industries and therefore increasing morbidity will lead to increased sickness absenteeism, fall in industrial productivity and thereby having adverse social and economic implications. At the same time this leads to increasing financial burden on healthcare delivery systems as ESIC beneficiaries get their treatment from the ESIC dispensaries. It therefore became imperative that a study on the trend in NCD be undertaken to estimate the disease burden and generate database for helping in policy formulation for NCD by the ESIC.

Aims and objectives: The principal aim of the study was to know the trend in two major NCD, viz. Hypertension and Diabetes Mellitus among the patients attending the ESIC dispensaries.

Materials and methods: Inclusion criteria All patients with diabetes and/or hypertension who are currently under treatment or have been treated before for the same and who have been worked up at least once in the study period as per existing national/ international guidelines .

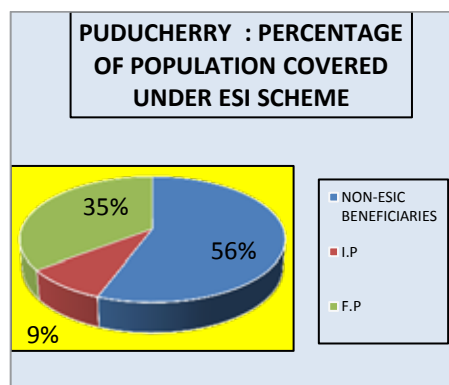
Exclusion criteria: Patients with incomplete clinical records, patients who have not been worked up as mentioned above .

Methodology: The study was done by reviewing the NCD registers, analysing the clinical records of Insured Persons and their family members who attended the ESIC Dispensaries. Those entries which were incomplete in any respect were not considered for the purpose of estimation of incidence and prevalence of diabetes and hypertension.

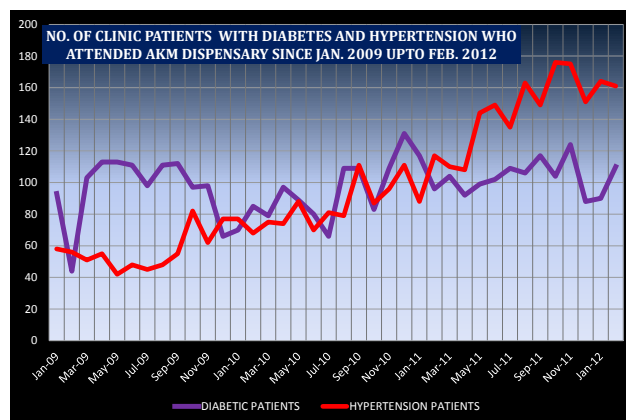
The diagnosis of hypertension was made according to the Indian hypertension guidelines. Diabetes was diagnosed based on the WHO criteria.

Results:

1. Percentage of population covered under ESIC Scheme

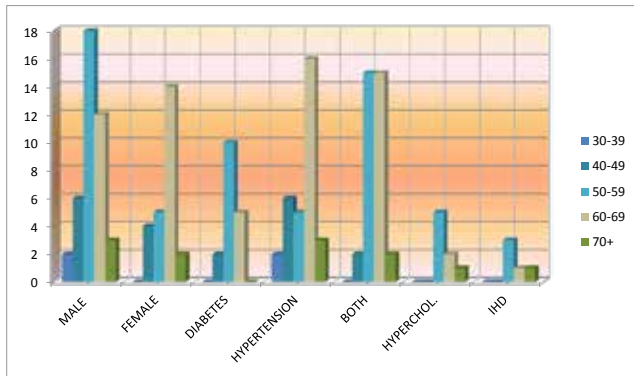


2. ESI DISPENSARY ARIYANKUPPAM (PONDICHERRY): JAN 09 TO FEB. 2012

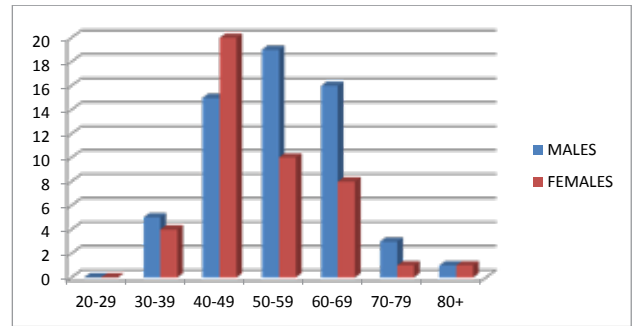


It can be understood from the chart above that there has been an increase in the number of patients with diabetes and hypertension attending the OPD in ESI Dispensary Ariyankuppam during the period from Jan-2009 to Feb. 2012

3. ESI DISPENSARY ARIYANKUPPAM: AGE, GENDER, DISEASE WISE DISTRIBUTION

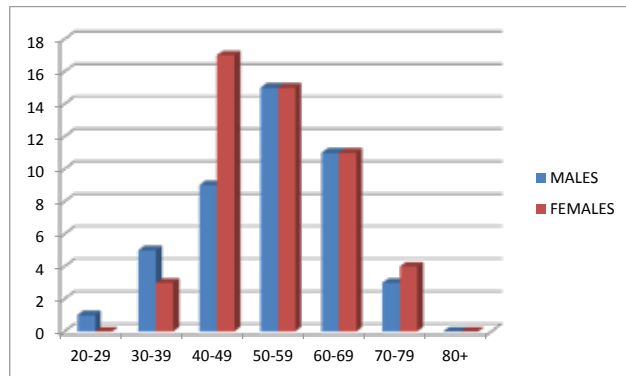


2015: HYPERTENSION : AGE & GENDERWISE DISTRIBUTION OF NEW PATIENTS :

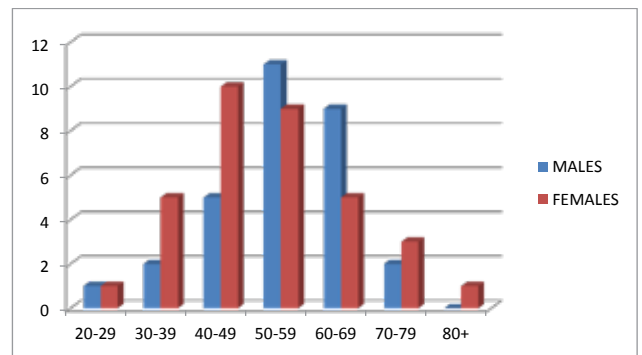


ESI DISPENSARY MUDALIARPET : TRENDS YEARWISE

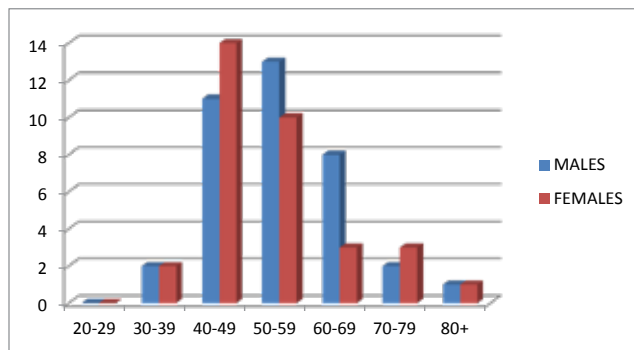
2013 : HYPERTENSION : AGE & GENDERWISE DISTRIBUTION OF NEW PATIENTS



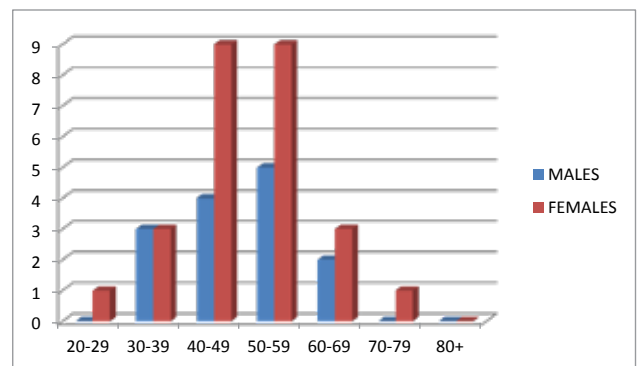
2016 : HYPERTENSION : AGE & GENDERWISE DISTRIBUTION OF NEW PATIENTS :



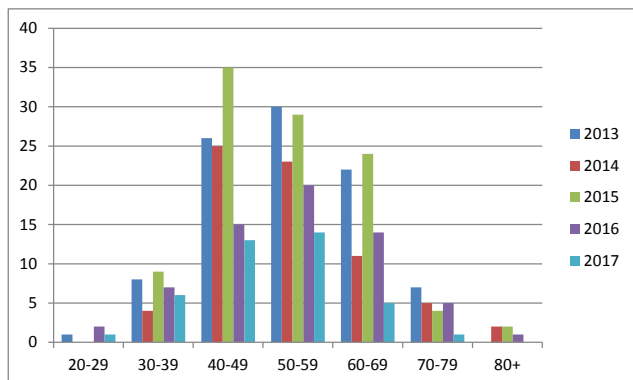
2014 : HYPERTENSION : AGE & GENDERWISE DISTRIBUTION OF NEW PATIENTS :



2017: HYPERTENSION : AGE & GENDERWISE DISTRIBUTION OF NEW PATIENTS (UPDATED TILL 30th JUNE):



CUMULATIVE YEARWISE DISTRIBUTION OF PATIENTS WITH HYPERTENSION :



It can be summarised from the above diagrams that over the last five there is demographic clustering of the patients with hypertension towards lower age-groups. While the majority of cases are in the 40-49 years age group, there is an increasing number of cases in 30-39 years age group. A few cases are also seen in 20-29 years age group. It is assumed that with more aggressive screening for hypertension there will be more cases in lower age groups.

Discussion: This is perhaps the first study of patients with hypertension and other NCD attending ESI Dispensaries in Pondicherry. The major challenges include patient education and empowerment so that they can actively participate in management of their NCD. Our experience in the management of NCD proves the point that effective prevention and control of NCD is achievable with available drugs and non-pharmacological measures.

Mean Platelet Volume as a Indicator of Severity of Hypertensive Retinopathy in Hypertensive Subjects

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Objective of the study: Hypertensive retinopathy (HR) represents the ophthalmic findings of end-organ damage secondary to systemic arterial hypertension. Platelets play a crucial role in the pathogenesis of atherosclerotic complications, contributing to thrombus formation or apposition after plaque rupture. The aim of our study was to investigate whether Mean Platelet Volume (MPV) is associated with the severity of hypertensive retinopathy in hypertensive patients.

Methodology: This cross sectional study was conducted in Department of Medicine of SAMC & PGI, Indore. Total 250 adult hypertensive patients (BP > 140/90 mm Hg or taking antihypertensive drugs) recruited for the study.

Results: Of the 250 subjects, 158 (63.2%) were male and 92 (36.8%) were female. Elevated MPV > 11.5 femtoliter was observed in 84 cases (33.6%). There was statistically significant relationship between the grade of retinopathy

and elevated MPV in hypertensive subjects. ($r = 0.52$, $P < 0.001$)

Conclusion: We described a relation between MPV and HR (probably first time in Indian patients). Measurement of MPV is easy to establish and therefore might serve as a valuable predictor of a worse outcome in microvascular complications.

Clinical Utility of Ambulatory Blood Pressure Monitoring (ABPM) in Stage 1 Newly Diagnosed Hypertensive Patients

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Objective of Study: To evaluate clinical utility of ABPM in stage 1 newly diagnosed hypertensive subjects, to compare ABPM readings with clinic blood pressure (Clinic BP) and to study dipping pattern and white coat hypertension (WCH) in newly labelled hypertensives.

Methodology: After institutional ethics committee approval and written informed consent from participants, an observational cross sectional prospective study was conducted in hypertension clinic of tertiary care hospital over a period of one year on 138 newly diagnosed stage I hypertensive patients. ABPM results were analyzed and compared with clinic BP.

Summary of Results: 86/138 (62.32%) were diagnosed to have true HT by ABPM. WCH was detected in 52/138 (37.68%) which is higher than that reported in international studies (21%). The mean pulse, mean systolic/diastolic BP, mean pulse pressure and MAP were significantly higher ($p < 0.0001$) by clinic BP than ABPM. True hypertensive patients were having higher weight ($p < 0.001$), had higher fasting blood sugar values ($P = 0.008$) and BUN levels ($p = 0.034$) than WCH patients. In true hypertensive patients' retinopathy (45.35%), albuminuria (31.40%), increased echogenicity of kidneys on USG (19.77%) and LVH on ECG (16.28%) were present. Hyperbaric index, was significantly higher for systolic and diastolic BP in true hypertensive patients as compared to WCH patients. True hypertension patients showed significantly higher average real BP variability for systolic BP ($p < 0.001$). WCH patients were predominantly males (71.15%), were younger (41.82 ± 12.77 years) than true hypertensives (46.45 ± 12.20 years), ($p = 0.037$) and did not show any end organ damage. 24hr Average SBP and Night time Average Pulse pressure were the factors from ABPM as predictors of organ failure. Dipping was detected in 33 (38.37%), non-dipping in 44 (51.16%) and reverse dipping in 9 (10.47%) patients. In non-dippers, retinopathy was predominant organ involvement (56.10%), followed by albuminuria (34.15%), increased echogenicity of kidneys on ultra sound (24.39%), and LVH on ECG (19.51%).

Conclusions: Our study reflects the clinical utility of ABPM for correct diagnosis of hypertension and detecting WCH.

Metabolic Syndrome in Hypertensives – An Essential Entity to Screen

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Objective of Study: To study prevalence, clinical characteristics, contributors, risk factors of Metabolic Syndrome in Hypertensives and compare them with hypertensives without metabolic syndrome.

Methodology: After ethical consideration, an observational cross sectional prospective study was conducted in hypertension clinic of tertiary care hospital on hypertensive patients. The patients with Metabolic Syndrome (N=160) were compared with respect to Modified ATP III, IDF and WHO criteria. Their clinical and laboratory parameters were compared with age and gender matched hypertensives without metabolic syndrome (N= 138).

Summary of Results: Prevalence of metabolic syndrome in hypertensive subjects was 53.7% (Modified NCEP-ATPIII criteria), 43.3% (WHO criteria) and 47.6% (IDF criteria). Metabolic syndrome was more frequent in male hypertensives (54.4%) and in the age group of 40 to 60 years (60.6%). As per modified NCEP, three criteria were met in 53.8%, 4 in 40% and all five in 6.8% hypertensives. Mean systolic (p=0.01) and diastolic (p=0.04) blood pressure were significantly higher in males as compared to females. Female hypertensives had significantly higher abdominal obesity (p< 0.001). Male hypertensives had significantly higher Cholesterol (p<0.001), Triglycerides (p<0.001), fasting blood glucose (p<0.001). When compared with hypertensives without metabolic syndrome, mean systolic BP (p<0.001), not at goal BP (p<0.001), non-adherence to life style modifications (p< 0.001) was noted in hypertensives with metabolic syndrome. Hypertensives with metabolic syndrome had significantly higher fasting blood glucose, abnormal lipids and higher serum uric acid levels (p<0.001). Azotemia, LVH on ECG and proteinuria were significantly higher (p<0.001) in these patients. Retinal (54.4%), renal (13.8% - p= 0.001), cardiac (30% - p<0.001) and cerebral (16.9%) end organ damage was higher in hypertensives with metabolic syndrome.

Conclusions: Hypertensives should be routinely screened for contributors for metabolic syndrome to prevent end organ damage and morbidity. Early intervention with lifestyle modifications will contribute in reducing vascular disease burden in our country.

Risk Factors of Intradialytic Hypertension in ESRD Patients at a Tertiary Care Hospital – An Observational Study

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Background: Hypertension is highly prevalent in end-stage renal disease patients on maintenance hemodialysis. Mechanism proposed to explain intradialytic HTN include: Volume overload, renin-angiotensin-aldosterone and sympathetic nervous system activation, removal of antihypertensive medications during dialysis, endothelial cell dysfunction and electrolyte imbalances involving dialysate sodium, calcium, or potassium. (1, 2). Intradialytic hypertension is defined as elevation in mean artery pressure >150mmHg or elevation of systolic blood pressure >10mmHg from pre to post dialysis. It is the most common complication seen in 5-15% patients on regular dialysis. Intradialytic hypertension is commonly seen in patients with older age group, lower BMI, hypoalbuminemia, longer vintage and volume overload state (3,4).

Aim: To detect the various risk factors associated with intradialytic hypertension in ESRD patients on regular dialysis at a tertiary care hospital.

Methods: Single center observational study in all ESRD patients undergoing hemodialysis at Kasturba hospital, Manipal; A total of 150 ESRD patients on regular hemodialysis were studied by a single nephrologist.

Inclusion criteria: All ESRD patients on regular hemodialysis at tertiary care hospital; **Exclusion criteria:** Acute kidney injury, other stages of CKD, Patients on Peritoneal dialysis

Results:

Gender	Male = 117	Female = 27
Age	>50 years = 74	<50 years = 70
Comorbidities	Hypertension = 90 Heart disease = 2 Hypertension+ heart disease = 33	Hypertension + lung disease = 3 Hypertension + liver disease =13
Etiology of ESRD	CGN = 45 Diabetes+ Hypertension=51	CTIN = 21 Others =12
BMI	Underweight=47 Normal=78	Overweight=19
Interdialytic weight gain	<3kgs=31	>3kgs=113
HD schedule	7.30am-1.30pm=39	1.30pm-7.30pm=40 7.30pm-1.30am=65
HD Vintage	<1year = 50	>1 year = 94
Prescribed HD session	1 time=18 2 times=106	3 times=20
Pre-HD antihypertensive medication	Yes=51	No=93

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Nocturnal SpO₂ Study by Polysomnography and its Co-relation with Glucose Status in Patients of Type 2 Diabetes Mellitus: A Population Based Cross Sectional Study

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Aims and Objective of the Study:

1. To Study the relation of Sleep Disorder Breathing to Type 2 Diabetes Mellitus.
2. To Prove that SpO₂ is an independent predictor of glucose metabolism in Type 2 DM patients.

Globally, an estimated 422 million adults are living with Diabetes Mellitus according to the latest 2016 Data from WHO. India has 69.2 million People living with Diabetes Mellitus with a prevalence of 8.7 % as per WHO data 2016. Type 2 Diabetes Mellitus constitute 85 – 90 % of Diabetic Population, is the most prevalent form in India. Sleep Disorder Breathing (SDB) has a major association with Type 2 Diabetes Mellitus patients. Recently, there has been increasing recognition that SDB, a condition characterised by reduction or complete cessation of airflow during sleep, may impair Glucose metabolism. Furthermore, some evidence suggests that diabetes might increase the predisposition for obstructive sleep apnoea. Early identification of obstructive sleep apnoea in patients with type 2 diabetes, and assessment for metabolic abnormalities in those with obstructive sleep apnoea could reduce cardiovascular disease risk and improve the quality of life of patients with these chronic diseases.

Materials and Methods: The Present Study is a Tertiary Care Hospital, Population Based Cross Sectional Study. Around 100 Subjects from either sex, were recruited from OPD or Emergency or admitted in IPD at SCB MCH,

Cuttack, Odisha, who meet the following inclusion Criteria are considered for inclusion in this study.

Inclusion Criteria

1. Age: 18 – 70 Years and Type 2 Diabetes Mellitus of any duration, on stable Medication Regimen.

B.P. Apparatus which one to select? Past to Future of Evaluation of Vital Sign

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Introduction: Measurement methods of Blood pressure make an initial step to control the disease. An uniformity of measurement of BP will aid in proper management of the devastating epidemic of Non Communicable Diseases NCD.

Methods & historical review: Initially all the apparatuses used were Anaeroid, but the issue of calibration was never answered in a recognisable manner. Introduction of Mercury eased our job but many issues related to environmental toxicity & disposal was a big concern. With the invasion of Medical electronics, the digital equipments were available but lacked uniformity of calibration. Unlike the other national Academic medical bodies we do not have a list of models which are approved by a society. However introduction of an electronic Blood pressure apparatus, which measures BP three times at intervals of 10 seconds & gives an average can be considered as a gold standard of BP measurement in an unobserved situation where the impact of White coat hypertension can be easily eliminated. A method which is available, accessible, affordable, reproducible must be adopted all over the country or Subcontinent.

Future & recommendations: The future lies in an instrument which can be accessed by the health care provider or care giver on a smart phone with the help of a simple android or IOS enabled app made available free to the end user. It will improve the compliance, convenience, reduce cost burden & complications.

A concept of Tubeless BP apparatus using sensors which correlates closely to NIBP taken intra arterially is on the horizon. A concept of machine to man & Machine to Machine talk using IOT (Internet of the things) will add a major input in our all hurdles of Data management, 24 hour Ambulatory management & further research in the field.

To Determine Whether Vitamin D Deficiency is Associated with Increased Risk of Metabolic Syndrome among Adult Hypertensive Patients

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Introduction: Vitamin D deficiency is a highly prevalent condition, present in approximately 30-50% of the general population. Vitamin D deficiency predisposes to insulin resistance, pancreatic beta cell dysfunction, and the metabolic syndrome. The aim of this study was to determine whether vitamin D deficiency is associated with increased risk of metabolic syndrome among adult hypertensive patients.

Materials & Methods: This is a cross sectional study, conducted at Department of General Medicine of a tertiary care centre. All adults (age >18 years) diagnosed as essential hypertension were included in the study. 250 residents of Indore city who gave informed consent and met the inclusion criteria were selected as subjects. All subjects were almost equally divided into three groups; depending on serum 25(OH)D level. Following investigations were also done in all patients: Hb, ESR, serum creatinine, fasting blood sugar, serum TSH, and Lipid profile. The Non-parametric test, Pearson's Chi-Square test has been used for qualitative data.

Results: Hypertensive Subjects were divided into three groups depending on serum 25(OH)D level. Female hypertensive patients were predisposed for vitamin D deficiency. BMI, waist circumference, blood pressure, fasting blood sugar and triglyceride levels were higher in vitamin D deficiency patients. 24% of vitamin D deficiency subjects had metabolic syndrome in comparison to 12% of vitamin D insufficiency subjects and 8% of vitamin D sufficiency subjects had metabolic syndrome.

Conclusion: In summary, vitamin D deficiency also has extra-skeletal effects that impact on the development of various pathologies including those that make up a large majority of morbidity and mortality; metabolic syndromes. Our findings suggested that serum 25(OH)D concentrations were inversely associated with the risk of metabolic syndrome among hypertensive subjects.

Prognostic Significance of Microalbuminuria in Patients with Recent Ischemic Stroke

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Introduction: "Cerebrovascular Disease" or "Stroke" is one of the leading causes of mortality and morbidity in adults worldwide, posing serious medical, socio-economic and rehabilitation problems. There is growing interest in unifying mechanisms in ischemic stroke pathogenesis. Microalbuminuria (MA) is thought to be a marker of widespread vascular damage. It is associated with increased mortality in diabetes mellitus, hypertension and

acute myocardial infarction. Although microalbuminuria as an indicator of microvascular damage has been well established, its role in the prediction of macrovascular events like cerebrovascular accidents is still left to be fully explored. Hence an attempt has been made to study the incidence of microalbuminuria in recent ischemic stroke patients and shed some light on its association with other risk factors and the prediction of the outcome of such patients.

Materials and methods: The present study included 32 patients diagnosed with ischemic stroke confirmed by CT scan brain, within 12 hours after the onset of symptoms. The control group consisted of 30 age and gender matched subjects examined 6 months after ischemic stroke. Patients with diabetes, hypertension, abnormal urinalysis, renal insufficiency, or systemic infection were excluded from the study. The severity of neurological deficit was measured by the Scandinavian Stroke Scale (SSS). The albumin excretion rate was measured using spot urine collection albumin creatinine ratio. The patients were reexamined 1 month later for assessment of activities of daily living using Barthel Index.

Results: Microalbuminuria was found in 10 of 32 (31.25%) patients with recent ischemic stroke and 2 of 30 (6.67%) controls. Patients with microalbuminuria scored lower on the SSS than patients without microalbuminuria. The patients with microalbuminuria scored lower on the Barthel Index 1 month later.

Interpretation and conclusion: The present study found that patients with recent ischemic stroke were 6.32 times more likely to have microalbuminuria when compared to the controls. Measuring albumin excretion rates seems to be a reliable indicator of stroke outcome 1month after the stroke.

OSA and Hypertension: A Tale of Two unhappy Bedfellows

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Obstructive Sleep Apnea (OSA) is an independent cause of hypertension, beyond the effect of obesity, gender and age. Patients of sleep apnea have 30-300% more risk of hypertension. OSA is thought to contribute to hypertension by increasing sympathetic nervous system activity, systemic inflammation and endothelial dysfunctions. During the past decades there has been a large body of evidences supporting the relationship between OSA and systemic hypertension (Two unhappy bedfellows). Currently there are data suggesting that OSA is an important secondary and reversible cause of hypertension. OSA is also associated with resistant hypertension and the presence of target-organ damage such as left ventricular hypertrophy and microalbuminuria. Randomised studies suggest that the management of OSA with continuous positive airway pressure (CPAP) promotes a significant

24 hour blood pressure reduction, more significantly in the sub-group of patients with uncontrolled and resistant hypertension. Despite the availability of effective therapy OAS remains an underdiagnosed and undertreated condition. Lack of physician's awareness is one of the primary reasons for this deficit in diagnosis and treatment. Systemic search for OSA among hypertensive patients should be made from accurate sleep history to full polysomnogram (PSG). PSG should be done in hypertensive obese patients, resistant hypertensive, nondippers or revers dippers in ABPM. Reversal of hypertension with CPAP is multifactorial depending upon the stage at which treatment is started. The best therapy is the early therapy before the development of hypertension. Don't wait for Retinopathy to treat DM.

Hypertension and its Risk Factors among Adult Population in a Rural Community of Singur Block, Hooghly District, West Bengal

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Background: Chronic non-communicable diseases (NCD) like hypertension, is emerging as a major health problem in India with increasing prevalence significantly in both urban and rural population. This is largely due to preventable and modifiable risk factors like physical inactivity, unhealthy diet, obesity, tobacco and inappropriate use of alcohol.

Objective: To find out the prevalence and risk factors of hypertension; and its association with hypertension among study population, if any.

Methods: A community-based study with cross-sectional design was conducted for 1 year from May, 2013 to April, 2014 among 651 adults (age 20 years and above) in rural communities of Singur, Hooghly District of West Bengal which is the rural field practice area of All India Institute of Hygiene and Public Health, Kolkata. Blood pressure measurement and information regarding socio-demography, behavioural risk factors and family history of hypertension were collected.

Result: The overall prevalence of hypertension was 26.1% (male 21.8% and female 29.9%). Prevalence increased with increase in age group ($P < 0.05$). Muslim religion, less education; different modifiable risk factors like tobacco usage, obesity and sedentary life styles were found to be significantly associated with hypertension ($P < 0.05$). Multivariate logistic regression analysis (Forward Conditional method) showed that Age, type of family, tobacco usage, abdominal obesity, physical inactivity and diabetes mellitus together contributed 21.3 – 31.3% variation of hypertension.

Conclusion: The prevalence of hypertension in the rural population was found to be on the higher side compared to previous reports from India. The modifiable risk

factors of hypertension in rural communities were found to be increased indicating implementation of strong public health measures to combat hypertension and its consequences.

Key Words: Hypertension, Risk Factors, Adult, Population, Community, Rural.

Stroke in Youngs: Impact of Hypertension

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Stroke is a global health problem. While a specific definition of “young stroke” is lacking, the vast majority of authors consider “young stroke” to pertain to individuals under 49 years of age. We performed an observational study on 50 young (15 – 49 years) new onset (within 48 hours) stroke patients in search for the types, etiologies and risk factors of stroke. In our study, we found that the incidence of ischaemic stroke was higher than haemorrhagic stroke in young Indian patients. 24(48.0%) patients were in haemorrhage group and 26(52.0%) patients were in infarct group. We searched for the risk factors in causal relationship with stroke in youngs and it was found that 21 (42%) patients were hypertensive, 4(8%) patients were diabetic, 11(22%) patients were smoker, 27(54%) patients had high BMI, 15(30%) patients had family h/o CVA, 23(46%) patients had dyslipidaemia and 13(26%) patients were alcoholic. Higher percentages of hypertensive patients 17(81.0%) suffered from ICH. This association was statistically significant ($p=0.00007$). Similarly, among 24 ICH patients, 17 (70.8%) had hypertension as a risk factor. In the infarct group 15.4% had hypertension. It was found that 22(44%) patients were drug defaulter i.e they had poor compliance to the antihypertensive and antidiabetic drugs. Out of the 25 drug defaulter patients, 16(64%) suffered from ICH because of poor compliance to antihypertensive drugs. Higher percentages 18(81.8.0%) of patients were found to be drug default positive in haemorrhage group. This association was statistically significant ($p=0.0001$). Under multivariate analysis significant risk of haemorrhage was found 17.10 folds more for Hypertensive patients. This is in commensurate with other similar studies performed in search of stroke risk factors among young patients. So, we can make a conclusion that early diagnosis of hypertension and its optimal treatment could reduce the incidence of stroke significantly.

Progression of Diabetic Retinopathy in Pregnancy and its Correlation with Glycemic Control and other Micro Vascular Complications

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Introduction: Diabetes is a disease in which blood glucose levels are above normal. Most of the food we eat is turned

into glucose, or sugar, for our bodies to use for energy. The pancreas, an organ that lies near the stomach, makes a hormone called insulin to help glucose get into the cells of our bodies. When you have diabetes, your body either doesn't make enough insulin or can't use its own insulin as well as it should. This causes sugar to build up in your blood. Diabetes can cause serious health complications including heart disease, blindness, kidney failure, and lower-extremity amputations. Diabetes is the seventh leading cause of death.

Dearest part of diabetes is its various complication which affect many organ system and responsible for the majority of morbidity and mortality associated with disease. Diabetes is the leading cause of new blindness in adults, renal failure and nontraumatic lower limb amputation. Diabetes related complication usually does not appear until second decade of hyperglycemia. As type 2 DM often have long asymptomatic period before diagnosis, many individuals have complication as the time of diagnosis.

Aim of the Study: To assess the rapidity of progression of Retinopathy in pregnant diabetes and with its correlation to other micro vascular complications.

Method: This is a hospital based prospective study done in the Dept. of medicine and Gynecology from 1st Jan 2016 to 30th June 2017 in which 100 patients are included with inclusion criteria being pregnancy with T2DM who are screened in each antenatal visit for fresh retinopathy

changes by expert ophthalmologist. Patient with prior retinal disease are excluded .

Results: Progression of the retinopathy occurred in 77.5% of the patients who presented with diabetic retinopathy at conception; proliferative diabetic retinopathy occurred in 22.5%. Only 26% of the patients who started the pregnancy without diabetic retinopathy had some progression of the retinopathy. Duration of the diabetes was longer in the progressive group compared with the nonprogressive group ($P = 0.007$). The glycohemoglobin was higher in the progressive group than in the nonprogressive group at each time point, but only in the third trimester was the difference statistically significant ($P = 0.04$). The hemoglobin level was lower in the progressive group than in the nonprogressive group ($P < 0.01$).

Conclusion: Pregnancy is a prominent risk factor for the progression of retinopathy. Though development of sight threatening retinopathy is rare during pregnancy, it can have serious consequences for the mother and the foetus. Proper planning of pregnancy in young diabetic women and prompt laser photocoagulation of severe non-proliferative retinopathy can prevent serious sight threatening retinopathy. DR has a definite tendency for regression in the post-natal period and if the retinopathy is stable after delivery there is no risk of progression with subsequent pregnancies.

Identification of ^{18}O -isotope of Breath CO_2 as a Non-invasive Marker to Distinguish Type 1 and Type 2 Diabetes

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Background: There is a pressing need to develop a new and an effective strategy for early detection of T1D and to precisely distinguish T1D from type 2 diabetes (T2D). The aim of the present study was to find out the potential link between the erythrocytes carbonic anhydrase (CA) activity and ^{18}O -isotopic exchange of breath CO_2 in T1D and T2D.

Methods: Fasting and post-dose breath and blood samples were collected simultaneously after ingestion of 75-gm normal glucose dissolved in 150-mL water. Blood samples were analysed to measure the CA activity. The breath samples were utilised to measure the carbon dioxide isotopes ($^{12}\text{C}^{16}\text{O}^{16}\text{O}$, $^{13}\text{C}^{16}\text{O}^{16}\text{O}$ and $^{12}\text{C}^{16}\text{O}^{18}\text{O}$) by a laser based high-precision carbon dioxide isotope analyzer.

Results: The CA activities are markedly altered during metabolism of T1D and T2D and this facilitates to oxygen-18 (^{18}O) isotopic fractionations of breath CO_2 . In our observations, T1D exhibited considerable depletions of ^{18}O -isotopes of CO_2 , whereas T2D manifested isotopic enrichments of ^{18}O in breath CO_2 , thus unveiling a missing link of breath ^{18}O -isotopic fractionations in T1D and T2D. The optimal diagnostic cut-off points were determined to be $\delta_{\text{DOB}}^{18}\text{O}\text{‰} = 2.1\text{‰}$ and $\Delta\text{CA} = 3.15 \text{ U/min/mL}$ for screening T1D and T2D individuals.

Conclusions: Our findings suggest the changes in erythrocytes CA activities may be the initial step of altered metabolism of T1D and T2D, and breath ^{18}O -isotope regulated by the CA activity is a potential diagnostic biomarker that can selectively and precisely distinguish T1D from T2D and thus may open a potential unifying strategy for treating these diseases.

Study of Metabolic Complications after 1 Year of Antiretroviral Therapy in HIV-Infected Patients in a Tertiary Care Center in North Bengal

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Aim: There are conflicting data regarding the incidence of metabolic abnormalities in human immunodeficiency virus (HIV)-naive patients on antiretroviral therapy (ART). Also, recommendations for the monitoring of fasting lipid and glucose by major world bodies is annually while this study demonstrates that significant changes occur in as early as 6 months.

Design: The incidence and pattern of metabolic complications have been studied in a case series study design at a tertiary care center through 1 year of ART. **Materials and Methods:** One hundred and twenty patients were followed for 1 year after initiating ART. Data collection and categorization were done according to the statistical software application such as mean comparison and one-way analysis of variance (ANOVA) using the statistical software IBM-SPSS (version 19 Chicago Inc.) assuming the significance at 95% of confidence interval (CI).

Results: At the baseline, total mean cholesterol was 162.25 mg/dL, triglyceride (TG) was 126.57 mg/dL, Low-density lipoprotein cholesterol (LDL-c) was 99.14 mg/dL and high-density lipoprotein cholesterol (HDL-c) was 36.96 mg/dL. At 6 months total cholesterol (TC), LDL-c, TG, and HDL-c increased by 12.49%, 15.01%, 14.93%, and 08.27%, respectively, and at 12 months these increased by 22%, 22.67%, 56.39%, and 14.98%, respectively, ($P < 0.05$). At the baseline, the mean fasting blood glucose (FBG) was 83.78 mg/dL while at 6 months and 12 months, the mean FBG was 88.18 mg/dL and 93.03 mg/dL, respectively, ($P < 0.05$). FBG was impaired in 11.9% and 17.8% of the patients at 6 months and 12 months, respectively. Diabetes was diagnosed in 4% of the patients at 12 months.

Conclusion: ART has significant metabolic complications such as dyslipidemia, glucose intolerance, and increased body mass index (BMI) and requires proper monitoring and dose adjustment.

Key words: Antiretroviral therapy (ART), metabolic complications, 1 year.

Assessment of the Knowledge and Treatment Adherence in Patients with Type 2 Diabetes Mellitus and their Correlation with Glycemic Control Among Patients in Tertiary Care Hospital in Northeast India

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Background: Self management of diabetes is an essential component of diabetes care. Improved glycemic control reduces the rate of complications and evidence suggests that patients who are knowledgeable about diabetes self-care have an overall better long-term glycemic control. Thus it is imperative to ensure that patients' knowledge, attitudes and practices are adequate.

Aim: To assess the knowledge, attitude and practices (KAP) to treatment in patients with type 2 diabetes mellitus and their relation to diabetes control.

Materials and Methods: A hospital based prospective study was conducted on 212 patients of type 2 diabetes mellitus selected by consecutive sampling. Assessment of KAP of patients towards diabetes was done using a pre-tested questionnaire. Control of diabetes was assessed by HbA_{1c} measurement. Statistical analysis was done using descriptive statistics, dichotomous scale responses.

Results: Mean age was 52.3 years with a male to female ratio of 1.8:1. Demographic parameters showed majority of patients (40.6%) did moderate physical activity, 38.4% were matriculate and 32.2% had a monthly income between Rs10000-25000. Majority (58%) were self reported diabetics while 42% were newly diagnosed, either due to symptoms (21%) or on routine blood tests (79%). Adequate knowledge of the disease and its complications were found in 29.2% and 18.44% respectively. Majority (59.4%) of the patients were on oral agents, 21.2% on OHA + Insulin and 9.2% on only Insulin, remaining 10.2% on diet control alone. About one-third (36.2%) showed high adherence to medication. More than two-thirds of the patients reported less than one annual health check-up. Median HbA_{1c} was 7.8%. Patients with higher scores in KAP, higher educational qualification and higher monthly income had a lower mean HbA_{1c} suggesting better control.

Conclusion: Overall low scores of KAP of diabetes and its complications were found to be associated with poor glycaemic control. This suggests the need for educational interventions to improve the knowledge, attitude and practices of the diabetes patients.

Prevalence of Mutated Allele CYP2C93* among Type 2 Diabetes Patients Undergoing Adverse Drug Reactions Due to Sulfonylurea Treatment

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Background: Sulfonylureas are mainstay of pharmacotherapy for type 2 diabetes mellitus (T2DM). Individual variability exists in pharmacokinetic and pharmacodynamic responses to sulfonylurea and also its adverse effects,

Objective: To determine frequency of cytochrome P450 2C9 mutant allele CYP2C93*, in T2DM patients on sulfonylurea therapy, and to ascertain the frequency of adverse drug reactions (ADR) with respect to particular allelic distribution.

Materials and Methods: A hospital-based prospective observational study was carried out in a tertiary-care teaching hospital. Study included 136 T2DM patients on sulfonylurea therapy (83 with ≥ 1 ADR and 53 without ADR). DNA was isolated from the blood samples from all 136 patients by DNA isolation. PCR-RFLP (restriction fragment length polymorphism) technique was used for detection of CYP2C93* (Ile359Leu) allele and the wild type allele CYP2C91* by digestion with restriction enzyme. Data were analyzed using Statistical Package for Social Survey (SPSS) for Windows version 16.0 and Microsoft Excel to determine descriptive statistics.

Result: Allele CYP2C93* was detected in 11 patients. All alleles negative for the nucleotide substitutions at position 42614 (*3) were presumed to be wild type CYP2C9*1. Among the patients with CYP2C93* allele 11 patients experienced hypoglycemia and one patient experienced acute visual disturbances. No CYP2C93* was detected in the subjects without ADR.

Conclusion: In our study CYP2C93* was identified in 11 patients experiencing hypoglycaemia and in one patient experiencing acute visual disturbances. In view of the existence of such polymorphisms and its effects on sulfonylurea therapy further studies are required to assess the magnitude of such problems in T2DM.

KEY WORDS: Sulfonylurea, adverse drug reaction, type 2 diabetes mellitus, frequency, CYP2C93* allele.

Predictors of Long Term Glycemic Control in Patients with Diabetes Mellitus at a Tertiary Care Hospital in Sikkim

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Introduction: Diabetes mellitus is common but complex metabolic disease where adequacy of drug and non-drug therapy is key to achieve optimal glycemic control in

addition to a complex interplay of socio-demographic, health care access, nature of therapeutics and disease specific factors.

Materials and methods: A cross sectional hospital based study was carried out in department of Medicine of a tertiary care hospital in Sikkim for a period of one year with the aim to identify significant predictors of glycemic control in patients with Type 2 diabetes mellitus. 200 consenting adults diagnosed with diabetes mellitus (as per ADA criteria) were recruited. Explanatory variables across outcome subgroups were compared by either student's t- test (continuous variables) or Chi square test (dichotomous variables) and considered $p < 0.05$ as level of significance.

Results: Significant predictors of poor glycemic control were patients belonging to low socioeconomic status ($P = 0.03$), longer duration of diabetes ($P = 0.02$) and higher BMI ($P = 0.04$) and predictors of good glycemic control were adherence to pharmacotherapy ($P = 0.01$) and self-monitoring of blood glucose ($P = 0.01$). The best glycemic control was achieved by those on insulin alone.

Conclusion: Factors such as socioeconomic status, duration of diabetes mellitus, monotherapy, SMBG, BMI and good adherence were found to impact the achievement of good glycemic control.

Study of Clinical Profile and Treatment – Outcome of Diabetic Ketoacidosis in Adults in Central India, A Hospital Based Survey

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Background and objectives: Diabetic Ketoacidosis (DKA) is characterised by hyperketonaemia, metabolic acidosis and hyperglycaemia. It is a serious acute complication of Diabetes Mellitus and has significant morbidity. This study was done to observe the clinical profile and treatment outcome of the adult patients with DKA in our tertiary care hospital.

Methodology: The study was a prospective observational study where all the patients admitted with a diagnosis of Diabetic Ketoacidosis (DKA) as defined ADA 2006 consensus statement in ICU of our CCM Hospital, Bhilai from October 2014 to November 2016.

Results: In our study, out of 72 patients admitted with DKA, 52 had DM type 1 and 20 had DM type 2. Males were predominant (65.28%). 17 patients (23.61%) were first time diagnosed ad DM. All newly detected diabetics had DM type 1 (100%). Nausea and vomiting (69.44%) was the most common presenting complaint. Infection (56.94%) was the most common precipitating factor for DKA. 13.89% patients had severe DKA which was more common in DM type 2 patients (P value < 0.038). Co-morbidities were more common in DM type 2 patients of which HTN

was the most common co-morbidity. Complications were more common in DM type 2 patients. Incidence of complication was 9.72%. Mean age of DKA in DM type 1 was 21.33 ± 3.19 and in DM type 2 was 48.7 ± 13.12 years (p value < 0.0001). Duration of Diabetes of 1-2 years was most common (31.94%) in DKA patients. Incidence of Kussmaul breathing was 19.44%. Mean amount of insulin used during hospital stay was 309.15 ± 70.53 IU. Mortality of 4.16% was seen and 95.84% patients recovered. Bicarbonate therapy was associated with poor prognosis. Severity of DKA had significant effect on mortality.

Conclusion: Diabetic ketoacidosis is a fatal acute preventable metabolic complication of Diabetes Mellitus more common with DM type 1 patients with heterogeneous clinical presentation. Early diagnosis and treatment can avoid morbidity and mortality.

Key words: Diabetic ketoacidosis (DKA), CCM, Kussmaul breathing, Mean amount of insulin.

Study of Clinical & Biochemical Profile of Metabolic Syndrome in Acute Myocardial Infarction

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Background and objectives: Metabolic syndrome is a specific clustering of cardiovascular risk factors, which increases the mortality and morbidity. The present study was conducted to know the incidence of metabolic syndrome following acute MI, and to assess its various components and its impact on the in hospital prognosis of one week stay.

Methodology: Acute MI cases admitted to ICCU CCM Hospital Bhilai are studied for metabolic syndrome. Cases were defined according to the NCEP ATP III criteria ≥ 3 of the following: $FBS > 110$ mg%; triglycerides ≥ 150 mg/dl; $HDL-C \leq 40$ mg/dl (M), ≤ 50 mg/dl (F); $BP \geq 130/85$ mmHg waist circumference > 102 cm in (M) or > 88 cm (F).

Results: In our study incidence of metabolic syndrome in acute MI was 48.33%. Low HDL-C (86.21%) was the most prevalent component followed by high TGs (75.86%), hyperglycemia (68.97%), hypertension (58.62%) and high WC (51.72%). In hospital complications (1week) like heart failure (41.38%) and case fatality (24.14%) were higher in metabolic syndrome compared to those without and is associated with four times more chances of complications (odds ratio 3.85, p value < 0.05).

Conclusion: The prevalence of metabolic syndrome was high in MI patients and associated with worse in hospital prognosis with development of complications including heart failure and case fatality.

Key words: Metabolic syndrome, MI.

Study of Association of Serum BNP & Ischemic Stroke in Central India

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Background and objectives: Ischemic to brain is characterized by too little blood to supply and adequate amount of oxygen and nutrients to a part of the brain. The present study was conducted to know the association of serum BNP levels and acute ischemic stroke and its outcome.

Methodology: All consecutive patients of ischemic stroke, who had been admitted in Chandulal Chandrakar Memorial Hospital, Bhilai, within 72 hours of onset, from December 2015, were taken for the study. The neurological deficits were assessed clinically and according to the Glasgow coma scale (GCS) and National Institution of Health stroke Scale (NIHSS) at the time of admission and mRS score at the time of discharge.

Results: Among stroke subtypes, elevated BNP levels were observed in 75% of cardioembolic strokes, 45.8% of small artery disease, 43.1% of larger artery atherosclerosis, and 34.5% of stroke of undermined etiology.

Among 75 pts mortality was 2(2.67%) pts & had markedly raised serum BNP level was seen in these pts. There was a significant association seen in serum BNP level & mortality.

Conclusion: Our study found that BNP is a reliable marker for the diagnosis of cardio embolic stroke in Indian patients.

A biomarker that can be applied in stroke diagnosis and typing will provide advantage in terms of both case and speed of diagnosis. Researchers all over the world are trying to discover such a biomarker.

Key words: Ischemic stroke, Serum BNP

Identification of ¹⁸O-isotope of Breath CO₂ as a Non-invasive Marker to Distinguish Type 1 and Type 2 Diabetes

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Background: There is a pressing need to develop a new and an effective strategy for early detection of T1D and to precisely distinguish T1D from type 2 diabetes (T2D). The aim of the present study was to find out the potential link between the erythrocytes carbonic anhydrase (CA) activity and ¹⁸O-isotopic exchange of breath CO₂ in T1D and T2D.

Methods: Fasting and post-dose breath and blood samples were collected simultaneously after ingestion of 75-gm normal glucose dissolved in 150-mL water. Blood samples were analysed to measure the CA activity. The breath samples were utilised to measure the carbon dioxide isotopes (¹²C¹⁶O¹⁶O, ¹³C¹⁶O¹⁶O and ¹²C¹⁶O¹⁸O) by a laser based high-precision carbon dioxide isotope analyzer.

Results: The CA activities are markedly altered during metabolism of T1D and T2D and this facilitates to oxygen-18 (¹⁸O) isotopic fractionations of breath CO₂. In our observations, T1D exhibited considerable depletions of ¹⁸O-isotopes of CO₂, whereas T2D manifested isotopic enrichments of ¹⁸O in breath CO₂, thus unveiling a missing link of breath¹⁸O-isotopic fractionations in T1D and T2D. The optimal diagnostic cut-off points were determined to be $\delta_{DOB}^{18O}\text{‰} = 2.1\text{‰}$ and $\Delta CA = 3.15 \text{ U/min/mL}$ for screening T1D and T2D individuals.

Conclusions: Our findings suggest the changes in erythrocytes CA activities may be the initial step of altered metabolism of T1D and T2D, and breath ¹⁸O-isotope regulated by the CA activity is a potential diagnostic biomarker that can selectively and precisely distinguish T1D from T2D and thus may open a potential unifying strategy for treating these diseases.

Profile of Metabolic Syndrome in a Tertiary Care Hospital

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Introduction: Metabolic syndrome (MS) is clustering of the pro-atherogenic factors like hypertension, diabetes, dyslipidemia and abdominal obesity. People with MS are about twice as likely to develop cerebro-vascular disease and coronary artery disease. The prevalence of MS has been reported worldwide is 23-25%.

Methods: A prospective cross sectional study was conducted in Medicine outpatient department of Rohilkhand medical college Bareilly. All patients with abdominal obesity (waist circumference >90cm in male and >80cm in female) were included in the study after informed consent. A detailed history and examination was done on all patients and lipid profile was done in all of them, various components of MS were identified.

Results: Amongst 100 patients selected for the study; 60 had hypertension, 43 had Diabetes Mellitus (DM), 72 had dyslipidemia, 41 had both hypertension and DM, 39 had both hypertension and dyslipidemia, 39 had DM and dyslipidemia., 39 had all the 3 components. Conclusion: MS is a growing epidemic. Every 3rd OPD patient has waist circumference >90 in male and >80 in female. Hypertension is most common accompaniment followed by dyslipidemia. Many patients already have one of the complication of MS i.e. Stroke or coronary artery disease.

Studying the Effect of FED Status on Serum Lipid Profile Values in Patients with Type-2 Diabetes Mellitus

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Introduction: Serum Lipid profile is usually measured after fasting. We tested the hypotheses that these levels change only minimally in response to normal food intake, even in diabetic individuals.

Methods: We studied sixty five type 2 diabetic individuals and measured serial lipid panels to determine the effect of fed status. Normal daily routine diet was fed to each individual and blood for lipid assay was obtained at fasting, one hour and two hour following the meal.

Results: Average change in serum total cholesterol after one hour was -0.8% ($p>.05$), after two hour was -0.57% ($p>.05$); Average change in serum triglyceride after 1 hour was +8.36% ($p<.01$), after two hour was +10.64% ($p<.001$); Average change in serum HDL-cholesterol after one hour was +5.59% ($p>.05$), after 2 hour was +4.55% ($p>.05$); Average change in serum LDL cholesterol after 1 hour was -3.29% ($p<.01$), after 2 hour was -2.08% ($p<.05$) found.

Conclusions: Our pilot project results conclude that postprandial state does not affect total cholesterol and HDL cholesterol but there is significant rise found in serum triglyceride level. LDL cholesterol levels showed paradoxical decrease in post prandial state but we infer it is because of rise in triglyceride level rather than per se decrease in LDL cholesterol as it is calculated value depending on serum triglyceride level. We propose a larger cohort study along with direct estimation of LDL cholesterol.

Status of Vitamin D in Type 2 Diabetes Mellitus: A Hospital Based Study

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Introduction: Vitamin D deficiency has been found to have an inverse relationship with the occurrence of type-2 diabetes mellitus. The aim of this study was to assess the vitamin D level in type-2 diabetic patients.

Materials and Methods: A hundred patients of type2 diabetes mellitus with an equal number of non-diabetic persons with no history of chronic renal failure, calcium and vitamin D supplement intake were taken as cases and controls respectively. Serum 25 hydroxyvitamin D3 level was estimated and compared with fasting blood glucose and glycosylated HbA1C in both the cases and controls for a period of 6 months.

Results: The prevalence of vitamin D insufficiency was significantly higher among diabetic patients than among

the controls (63% vs. 33%, $p<0.001$). Patients with poor glycaemic control had a higher prevalence of vitamin D insufficiency status (80%) than those good glycaemic control (31%). Patients with a diabetes duration of more than 10 years also had a higher prevalence of low vitamin D status (70% vs. 30%).

Conclusion: A low vitamin D status is present in more than two thirds of patients with DM type 2, particularly among diabetics with poor glycaemic control and among those with longer diabetes durations.

Role of Serum Uric Acid as a Prognostic Marker in Acute Coronary Syndrome: A Hospital Based Study

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Background: The role of uric acid as a prognostic factor in patients with acute coronary syndrome is controversial. The aim of the present study is to estimate serum uric acid levels in acute coronary syndrome and its correlation with Killip's classification of heart failure & in hospital mortality.

Method: A total of 100 patients with acute coronary syndrome meeting the inclusion and exclusion criteria, with an equal number of age and sex matched controls were selected for study during the period January 2017-May 2017. Serum uric acid level was estimated on day 0, 3 and 7 of acute coronary syndrome.

Results and observations: A statistically significant higher level of serum uric acid concentration in patients of acute coronary syndrome (7.63 ± 1.54) was observed on the day of admission as compared to controls (5.47 ± 1.12). Higher serum uric acid ($>8.5\text{mg \%}$) level along with higher Killip's class (III, IV) was associated with higher mortality (95%) and major adverse cardiac events.

Conclusion: Patients with elevated serum uric acid levels belonged to higher Killip's classification and were associated with higher in hospital mortality. Hence serum uric acid can be used as a short term prognostic marker in patients with acute coronary syndrome.

Keywords: Uric acid, acute coronary syndrome, killip's classification, Prognosis, Mortality

Study of HbA_{1c} as a screening biomarker of Dyslipidaemia in T₂DM

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T₂DM is one of the modern pandemics. International Diabetes Federation (IDF) data has revealed that the prevalence of diabetes in India exceeds that of the United

States and is ranked 2nd in the world, just behind China. HbA_{1c} is the marker of glycaemic control over 3-4 months. Elevated level indicates poor control of blood glucose and predicts the risk of development of diabetic complication. Dyslipidaemia is one of the important complication and a classical risk factor for cardiovascular disease (CVD). As such, a humble attempt has been made to evaluate the association of T₂DM with dyslipidaemia with HbA_{1c} as the marker. The aim of the study was to evaluate the efficiency of HbA_{1c} as a marker of dyslipidaemia in T₂DM. 50 patients with T₂DM were studied between Jan 2017 to May 2017. HbA_{1c} showed direct and significant correlation with cholesterol, TG, LDL and inverse correlation with HDL. So we concluded that measurement of HbA_{1c} and keeping it within normal limits is warranted to reduce the mortality and morbidity from micro-vascular complication of dyslipidaemia in T₂DM.

Keywords: Type II Diabetes mellitus, Dyslipidemia, HbA_{1c}, TG, LDL, HDL.

A Study Comparing ECG and Lipid Profile Changes Among Smokers and Non Smokers

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Background: Smoking is a risk factor for cardiovascular disease and peripheral vascular disorder. The monitoring of lipid profile and ECG changes is very important to get an estimation of future mortality and morbidity amongst smokers.

Objectives: To describe the effects of smoking on lipid profile and ECG changes and to identify the morbidity amongst smokers and non-smokers.

Methods: A cross sectional study was carried out in the outpatient department of Silchar Medical College and Hospital. A total of 100 patients participated in this study.

Results and observation: The mean value of total serum cholesterol in smokers were higher than in non-smokers. There was a significant higher level of total serum cholesterol and triglyceride in smokers compared to non-smokers. While the serum HDL was lower in smokers.

Total serum cholesterol and HDL were significantly associated with the number of cigarettes/bidis smoked per day. In addition, lower level of serum LDL was found in smokers. ECG changes include increase in heart rate, p pulmonale, p mitralae in both males and females and particularly in females, with less number of pack years.

Conclusion: Smoking is associated with dyslipidemia. Total serum cholesterol and HDL may be considered as the main parameters that are affected by intensity of smoking. However, preventive strategies are needed to avoid future cardiovascular diseases and peripheral vascular disorders in smokers.

Echocardiographic Evaluation of Diastolic Dysfunction in Type 2 Diabetes Mellitus and its Correlation to Microvascular Complications

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Introduction: In diabetic patients, incidence of heart failure is high, even in the absence of hypertension and coronary artery disease. Although heart disease in diabetes is primarily due to macrovascular origin, but growing evidence from different observations suggests the possibility of microvascular pathogenesis also.

Aim: To assess the diastolic dysfunction in asymptomatic, normotensive type 2 diabetic patients and to correlate it with the microvascular complications (nephropathy and retinopathy).

Methods: 60 Diabetic (type 2) patients from Jawaharlal Nehru medical college and associated hospital Ajmer were enrolled in our cross-sectional study. Diabetic retinopathy evaluation was done by using the direct ophthalmoscope. Diabetic nephropathy was assessed by a 24 hour urine albumin measurement. 2D echocardiography was done to assess left ventricular diastolic dysfunction.

Results Among the 60 patients enrolled in our study, 34 were male patients and 26 were female patients. Maximum number of patients was in the age group 50 -59 years (18 patients). The mean age in our study was 49.3±10.4. The overall prevalence of retinopathy in our study was 51.6%(31) and that of nephropathy was 66.67%(40). Among the 60 patients of type 2 diabetes, 34 of them had evidence for diastolic dysfunction. Out of 31 patients with retinopathy, 26(83.8%) had diastolic dysfunction (p value=<0.001) and among 40 patients with nephropathy, 32 of them had diastolic dysfunction accounting for 80%(p value=<0.001).

Conclusions: In our study, diastolic dysfunction is strongly associated with retinopathy and nephropathy. Hence it strongly supports microvascular origin of pathogenesis of diastolic dysfunction. Hence cardiac disease in diabetes is no longer only a macrovascular disease, but also microvascular changes do play a role.

An Abrupt Entry of Pre-Diabetes in Life, Can it Scare the Diabetes Away?

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With the 21st century the global trends of diseases showed a major shift from communicable diseases to non communicable ones, this is quite surprising that India carries a burden of 2.2 million Tuberculosis patients but that of diabetics is 62 millions.

Future trends of diabetes is even more frightening given the fact that prediabetics who are at the verge of getting

into the trap of diabetes are roaming around in huge numbers.

But, here is a catch, diabetes actually comes in after ringing a warning bell, in the name of pre diabetes.

If this pre-diabetes is given enough clinical importance diabetes can be kept at bay.

We designed a study on 129 patients over 45 days to assess the effects of clinical relevance appointed to pre-diabetics.

On an average there was 5-40 percent improvement in various variables that could lead to overt diabetes

Background: The diabetes is growing at a rate faster than ever before, a diabetes epidemic is bound to jeopardize the current health scenario of the world. According to an estimate of International Diabetes Federation, comparative prevalence of Diabetes during 2007 is 8.0 % and likely to increase to 7.3% by 2025.

Each year 7 million people develop Diabetes and the most dramatic increases in type 2 Diabetes have occurred in populations where there have been rapid and major changes in lifestyle, demonstrating the important role played by lifestyle factors and the potential for reversing the global epidemic.

A person with Diabetes incurs medical costs that are two to five times higher than those of a person without diabetes, and the World Health Organization estimates that up to 15% of annual health budgets are spent on diabetes-related illnesses.

Despite of this fact little is being done for the prevention of this havoc.

So in light of these facts we did a longitudinal study to assess the effect of pre-diabetic checkup and impact of conveying the potential dangers to those diagnosed with pre-diabetes and followed patients for 45 days to see the effects. The random blood glucose of 129 respondents between 16-65 years of age was measured in OPD where they presented for some un related illness. 54 of these respondents turned out to be pre-diabetic with their random blood glucose range between 140-199 mg/dl.

These 54 respondents with pre-diabetic range of blood sugar were randomly distributed into two groups.

Respondents of one group were told about their pre-diabetic condition and made aware of the potential danger they are in. While other group was not.

- Blood sugar fasting and post prandial
- Body weight
- Body mass Index
- Blood pressure
- HbA1c
- Total cholesterol
- HDL/LDL/Triglycerides

- Hours spend in physical activities (Life style modifications adapted)

Of the respondents of group A (27 people) who were told and made aware of the condition that they are at the verge of a catastrophe, 18 respondents had improvement in the variables which predicts future diabetes.

While the group from which the pre-diabetic status was concealed had the same condition and in some cases a worsened blood sugar status. Because they were not aware of the danger.

High economic and social costs of type 2 Diabetes and its rising prevalence make a compelling case for its prevention. Intervention prior to the onset of type 2 Diabetes may be the only way of preventing the complications of Diabetes. Because of its chronic nature, the severity of its complications and the means required to control them, diabetes is a costly disease, not only for affected individuals and their families, but also for the health systems. Regular screening and giving more relevance to patients with pre-diabetics can certainly reduce the burden of diabetes.

Pre-diabetics sets a time bomb which if left unattended would certainly blast into diabetes unless it is diffused by timely intervention.

Current recommendations and programs to curb diabetes seems to underestimate the burden of the disease.

With primordial prevention being the best way, if not achieved, leaves secondary prevention the only compelling way to prevent diabetes.

Pre-diabetes should be made clinically more relevant entity so that it can check the unwelcomed diabetes from coming in as was seen in the study designed above.

A Cross Sectional Study on Overweight and Obesity Among Adolescents in Kozhikode

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India faces a dual burden of under and over nutrition. Adolescent obesity increases the predisposition for development of adult obesity, diabetes mellitus, hypertension, non alcoholic steatohepatitis and ischemic heart disease in the future. The aim of the study was to determine the prevalence of overweight and obesity among adolescents in Kozhikode educational district. It was a cross sectional study, where the samples were selected from government, aided and unaided schools by stratified random sampling. 523 subjects were studied by questionnaires, clinical and anthropometric examinations. In our study, the overall prevalence of overweight including obesity was 16.8%. The prevalence of overweight and obesity was higher in unaided school (27.1%) followed by aided (20.9%) and least in government schools (7.2%). It was significantly higher in those subjects

whose parents were more than 12thstd educated and those with working mothers (24.6%). It was high in those whose mothers had gestational diabetes (28.9%). Those who eat snacks (21.3%), those consuming unhealthy diet, those skipping breakfast, those who watch TV more than 1 hour (23.9%) and those who use mobile or computer (20.3%) were having significantly higher overweight and obesity. Acanthosis nigricans (18.2%) and blood pressure were significantly associated with overweight and obesity implying the development of complications. All these suggest an urgent need for health education regarding diet and exercise to prevent diseases like hypertension, diabetes and other diseases.

Olanzapine and Pulmonary Embolism: Case Report of a Rare Association

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Venous thromboembolism (VTE) is a very common pathological process for which there are many well-known predisposing factors. The case of a 50 year old male is presented here who presented with VTE. None of the common causes were evident. Patient was on oral anti-psychotic olanzapine for past 10 years in view of Schizophrenia. Literature search revealed evidence linking the use of this drug to VTE. Diagnosis was slightly delayed due to the non-specific presentation of the pulmonary embolus and the fact that the link between olanzapine and pulmonary embolus was not previously widely described and therefore it did not immediately figure in the differential diagnosis. The patient made a full recovery on withholding the drug. Clinicians should bear this possible association in mind when prescribing the drug and when faced with clinical situations where VTE is a possible diagnosis.

Tetralogy of Fallot's with Dextrocardia with Situs Solitus Presenting in Adolescence

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Tetralogy of Fallot's (TOF) is the commonest cyanotic congenital heart disease with an incidence of 1 in 2000 newborns. Majority of these children present in infancy. Left untreated, only 3% survive to adulthood. TOF with dextrocardia has rarely been reported. These sporadic cases have almost all involved patients with mirror-image dextrocardia with situs inversus and TOF. Only one reported case of TOF and dextrocardia with abdominal situs solitus, detected on ultrasonogram in a fetus of 26 weeks' gestation has been published. The altered spatial orientation of the cardiac structures in case of dextrocardia can present a surgical challenge. A case of TOF with dextrocardia with late presentation during adolescence

is presented here. Age at presentation is governed by severity of right ventricular outflow tract obstruction. In the present case, diameter of left pulmonary trunk was 3 mm only. However, right pulmonary trunk had a normal diameter of 10 mm. And this selective obstruction of left pulmonary artery origin is speculated to be the cause of lesser severity of symptoms and, thus, late presentation at the age of 16 years in our case.

Incidence of Periodontitis in Diabetes Mellitus, its Relation to Glycemic Control and Microvascular Complications

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Background: Diabetes and periodontitis are complex chronic diseases with an established bidirectional relationship. There is long-established evidence that hyperglycaemia in diabetes is associated with adverse periodontal outcomes. Periodontal disease has been reported as the sixth complication of diabetes mellitus, along with neuropathy, nephropathy, retinopathy, and micro- and macrovascular diseases. An analysis of the National Health and Nutrition Examination Survey (NHANES) III data set confirms the significantly higher prevalence of periodontitis in diabetics than in nondiabetics (17.3% versus 9%).

Aim and Objectives: The aim of the study is to find out the incidence of periodontitis in diabetes mellitus and its association with other microvascular complications.

Materials and Methods: A cross-sectional study was carried out on a calculated sample of 100 individuals with diabetes and 50 cases of age and sex matched non-diabetics as control. Periodontitis was defined as clinical attachment loss (CAL) >3 mm in two or more non-adjacent teeth or those that exhibited CAL >5 mm in 30.0% of teeth. Nephropathy will be detected by the presence of micro-albuminuria, macro-albuminuria or Creatinine clearance of < 90 mL/min. Peripheral sensory neuropathy will be assessed by nerve conduction velocity (NCV) and clinically by history of parasthesias in the peripheries or decreased pain by pin-prick testing, or decreased touch by fine cotton wisp or decreased vibration sense by tuning fork, absent ankle reflexes. All subjects underwent a periodontal examination. Medical history and dental history were obtained with a structured interview. Discrete (categorical) groups were compared by Chi-square (χ^2) test. A two-tailed ($\alpha=2$) $P<0.05$ was considered statistically significant.

Conclusion: Inflammation is a central and common feature of pathogenesis of diabetes and periodontitis. It has been theorized that pro-inflammatory cytokines expressed by gingiva in periodontitis enter the systemic circulation leading to impaired glucose homeostasis and increased insulin resistance thereby exacerbating diabetes mellitus. Accumulation of Advanced glycation end-products

(AGE) upregulates inflammation. Binding of AGE to its receptor (RAGE) results in the upregulated production of inflammatory mediators such as IL-1 β , TNF- α and IL-6. AGE formation results in the production of ROS and enhances oxidant stress, and the subsequent endothelial cell changes that occur contribute to the vascular injury implicated in many diabetes complications.

Incidence of Cardiovascular Autonomic Neuropathy in Type 2 Diabetes Mellitus Patients of 5 Year Duration and its Correlation with Glycemic Control

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Globally an estimated 422 millions adults are living with diabetes mellitus according to the latest 2016 data from WHO. India had 69.2 million people living with diabetes mellitus with a prevalence of 8.7% as per WHO data 2016. Type 2 diabetes mellitus constitute 85-90% of diabetic population, is the most prevalent form in India. Most of the mortality in diabetic population is due to its complication. Diabetic autonomic neuropathy (DAN) is a serious and common complication of diabetes that is most often ignored by most of the clinicians. DAN is completely unrecognised by patients and physicians because of its insidious onset and protean multiple organ involvement. DAN can involve multiple systems including cardiovascular, gastrointestinal, genitourinary, sudomotor, metabolic systems, metabolic systems, pupillary dysfunction. In our study we have taken patient having age above 30 years of either sex, duration of type 2 diabetes mellitus 5 years or more, HbA1c \geq 6.5%. We excluded patients with hypotension, congestive cardiac failure, ischemic heart disease, hyperthyroidism, chronic renal failure, multiple system atrophy, Addison's disease and patients on medications such as vasodilators, diuretics, antiarrhythmic, beta blockers, alpha agonist, alpha blocker. Incidence of Cardiovascular autonomic neuropathy is determined by different method like resting heart rate, orthostatic hypotension, hand gripping test, QTc interval, exercise tolerance test. If finding of any 2 or more of the above test in a patient is abnormal then the patient will be diagnosed as positive cardiovascular autonomic neuropathy. In our study we found 35 (75%) out of 50 patient diagnosed as diabetic cardiovascular autonomic neuropathy.

A Study of APOC3 Gene Polymorphism in Patients of Diabetes Mellitus with Hypertriglyceridemia

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Aims and Objectives: To find out the presence of SstI polymorphism in APOC3 gene in patients of Diabetes Mellitus with Hypertriglyceridemia.

To find out the correlation between serum triglyceride levels and SstI polymorphism.

Methods: The present study is a hospital-based observational case-control study, carried out in 300 patients of Diabetes Mellitus. Of these 300 subjects, 150 were hypertriglyceridemic and served as cases, while the other 150 who were normotriglyceridemic served as controls. PCR for APOC3 gene done in all cases.

Result: In a total of 300 subjects, 26.33% (n=79) were polymorphic. The association between increasing levels of triglyceride and the increasing percentage of SstI polymorphism was statistically significant, determined by the chi-square test. Of the 79 subjects bearing the polymorphic APOC3 gene, 26 had normal triglyceride level, 18 had borderline high triglyceride level, 30 had high triglyceride level and 5 subjects had a very high triglyceride level.

Conclusion: This is the first study from North-East India to determine the SstI polymorphism in APOC3 gene, and demonstrate a clear association between the polymorphism and serum levels of various lipoprotein fractions, including triglycerides. A prospective study comprising of a wide population group will help us in forming a definite conclusion.

A Study of Rheumatoid Arthritis and its Relation with the Metabolic Syndrome; with Special Reference to Disease Activity

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Background: The interest in identifying metabolic syndrome in patients with rheumatoid arthritis (RA) has emerged recently, justified by the need to better understand the determinant factors of cardiovascular disease (CVD) in these patients. However the appearance of the metabolic syndrome even in the people with normal dietary and without a particular genetic background raised the possibility that other pathogenic factors contribute to the development of it. Further studies indicated that inflammation constitutes the "missing puzzle piece" in the pathogenesis of the metabolic syndrome.

Methodology: This is a hospital based cross sectional study done in the period from 1st May 2011 to 30th April 2012. All patients admitted in the medicine department who fulfilled the criteria 2010 were taken up for the study. 72 Patients with age and sex matched control were recruited in the study were assessed clinically and information obtained from doing lipid profile.

Results: In our study we found there is an increased prevalence of hypertension in cases than controls (both systolic and diastolic) were seen in our study with a p value of 0.03. Prevalence of low serum HDL in cases compared to controls in our study. We also found that there is an

earlier presentation of metabolic syndrome in RA patients compared to the controls.

Conclusion: High prevalence of CVD in the patients with metabolic syndrome is well known but the increased prevalence of the metabolic syndrome even in the normal individual without traditional risk factors is a certain raiser of think for the other risk factors for the disease. As compared to other studies high prevalence systemic hypertension and low serum HDL shows systemic inflammation to be a causative factor for the metabolic syndrome. North eastern region being a culturally varied area needs further studies in this subject to establish the correlation.

Keywords: Prevalence, rheumatoid arthritis, cardiovascular disease

Pattern of Ischemic Stroke in Diabetes Mellitus

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Background: Diabetes mellitus is a well established independent risk factor for stroke and this increased risk has been linked to the pathophysiological changes seen in cerebral vessels of these patients. This study was conducted to describe the pattern of ischemic stroke in diabetic patients.

Methodology: It was a hospital based observational study conducted in the department of medicine and department of neurology of Assam medical college, Dibrugarh. Out of all stroke patients admitted from 1st July 2014 to 30th June 2015, persons with ischemic stroke were included in the study.

Results: Out of the diabetic patients with ischemic stroke, 12(14.63 %) patients had acute, 64(78.05%) had subacute, 25(30.48%) had chronic and 30(36.58%) had Lacunar infarct.

Among non-diabetics, 30(20.98%) patients had acute, 111(77.62%) had subacute, 36(25.17%) had chronic and 32(22.37%) had lacunar infarcts.

Conclusion: In diabetes mellitus patients with ischemic stroke, lacunar infarcts were significantly higher in comparison to non diabetic patients.

Triglyceride Level in Diabetic Patients

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Background: Hypertriglyceridemia and increased carotid-intima media (CIM) thickness are associated with increased risk of cerebrovascular and coronary artery disease in type 2 diabetes mellitus patients.

Hypertriglyceridemia is twofold more common in diabetic patients as compared to the non-diabetic patient. In type 2 diabetes mellitus patients, a rise in triglyceride level may be a better predictor of coronary artery disease than elevated cholesterol level.

Aims and Objectives: To find out the lipid profile in diabetic patients with special reference to triglyceride level.

To measure the fasting and post prandial level and their relevant in atherosclerotic lesion.

To study the carotid intima media thickness as an atherogenic marker of Hypertriglyceridemia.

Methodology: It was a hospital based observational study carried out in one hundred diabetic patient admitted in different units of Department of Medicine of Assam Medical College & Hospital, Dibrugarh during the period of 1st April 2002 to 31st March 2003

Result: It is observed that Hypertriglyceridemia (fasting >150 mg/dl or post prandial >200 mg/dl or both) was found in 30% cases and 9% in controls. Among cases post-prandial hypertriglyceridemia is 12% more than fasting hyperglyceridemia.

It is also noticed that both fasting and post prandial Hypertriglyceridemia together have shown increased carotid intima media thickness in 50% cases and no control has shown increased CIM. Post-prandial hypertriglyceridemia has double the risk of increased CIM thickness than fasting Triglyceridemia.

Conclusion: In diabetic patients Hypertriglyceridemia and increased CIM are significantly higher in comparison to non-diabetic patients.

Key words: Hypertriglyceridemia, Carotid intima media, Fasting, Diabetic.

Lipid Profile Changes in Dengue Fever

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Objectives: To correlate lipid profile changes, as a diagnostic test in dengue fever

Setting: Single centre, prospective study

Subjects: 20 (16 - 60 years) dengue cases and 20 controls age and sex matched non febrile patients.

Methods: Patients admitted in tertiary care hospital with dengue fever diagnose based on clinical symptoms and blood tests. After diagnosis is confirmed fasting lipid profile was sent.

(total cholesterol, total triglycerides, high density lipid profile, low density lipid profile, very low density lipid profile)

Results: total cholesterol, HDL, LDL were significantly low in cases compare to controls with mean difference of 83, 11 and 70 respectively and p value is less than 0.005.

Conclusion: lipid profile changes accompany dengue fever, can be used as one of diagnostic test for dengue fever.

Role of Neutrophil Lymphocyte Count Ratio as a Marker of Blood Glucose Control in Patients of Type 2 Diabetes Mellitus in Central Rajasthan

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Introduction: Leukocytosis as a part of inflammation has a role in the pathogenesis of atherosclerosis. Emerging evidence revealed that the neutrophil-lymphocyte count ratio (NLCR) may be a useful marker of cardiovascular disease and metabolic syndrome. The role of NLCR in metabolic syndrome and its relation with glycosylated haemoglobin (HbA1c) has been studied less. Hence we planned to study and investigate the relationship between NLCR and blood glucose regulation

Methods: This study was conducted in 50 patients with type 2 diabetes mellitus admitted for various causes in dept. of General Medicine, JLN medical college, Ajmer and were divided into two groups according to HbA1c levels: group 1, HbA1c levels < 7%; group 2, HbA1c levels > 7%. The NLCR ratio was significantly higher in group 2 compared with group 1 (2.87±0.15 versus 1.54±0.66, respectively; P<0.001). Analysis using Pearsons correlation coefficient showed that NLR correlated positively with

HbA1c levels (P<0.001) and showed a positive correlation with diabetes duration (P<0.02).

Results: Of 50 patients included, fasting serum glucose, neutrophil and WBC counts were significantly higher in group 2 compared with group 1. NLCR had a positive correlation with HbA1c.

Conclusion: There may be a significant relationship between NLCR and blood glucose regulation as increased NLCR associated with elevated HbA1c in patients with type 2 diabetes mellitus.

Multiple Extra Renal Complications in a Patient with Autosomal Dominant Polycystic Kidney Disease

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Autosomal dominant polycystic kidney disease (ADPKD) is considered as the most common life threatening monogenic disease, with a prevalence of 1 in 1000. Though the usual presenting features in ADPKD are cyst infection, hemorrhage into cysts, nephrolithiasis or hypertension, it can also cause various extra renal complications like hepatic cysts, cerebral aneurysms, cardiac diseases and abdominal wall hernia. We report a case of 52 year old lady with history of long standing hypertension, now presented with abdominal mass. On evaluation she was found to have ADPKD with multiple extra renal complications like hepatic cysts, abdominal wall hernia, and pericardial effusion without any renal complications.



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