be a useful prognostic marker for critically ill patients. This has prompted investigators to evaluate the utility of albumin supplementation to improve outcome of these patients. Most of these studies have failed to show any benefit of albumin supplementation. We tried to see if SA levels estimated during early hospital had a better prognostic value.

**Objective:** To study the SA levels at presentation and early hospital stay of critically ill patients and to correlate them with outcome of these patients.

**Methods:** Fifty critically ill patients (Mean age 45 ± 19 yrs., M:F 37:15) who required at least 5 days of mechanical ventilation were included over a 6 month period from April 2002 to September 2002. All patients surviving for less than 5 days were excluded. SA estimation was done on day 1, 3, 5, 10 and 15. Outcome in the form of hospital mortality was recorded.

**Results:** Study group consisted of patients with sepsis (n=12, 24%), COPD (n=11, 22%), and severe pneumonia (n=10, 20%) among others. Mean SA levels showed consistent fall during hospital stay (mean SA on day 1, 3, 5, 10 and 15 were 3.2 ± 0.7 gm%, 2.9 ± 0.6 gm%, 2.9 ± 0.6 gm%, 2.8 ± 0.6 gm%, 2.7 ± 0.65 gm% respectively). There was no statistically significant difference between day 1 mean SA levels for survivors and non-survivors. On the other hand the difference between the two groups became statistically significant day 3 onwards and remained significant subsequently. On comparing the outcome between the patients with SA more than or less than 3 gm% on various days, it was found that outcome was not different for day 1 and 3 whereas it became higher for patients with SA < 3 gm% from day 5 onwards. In fact on day 5, mortality was 52.1% for SA < 3 gm% whereas it was 18.5% for SA > 3 gm% (p=0.004).

**Conclusions:** In comparison to SA levels at presentation, those estimated at least 48 hrs. later are better predictors of mortality. SA < 3 gm% at day 5 appears to be the strongest predictor of mortality. Utility of albumin supplementation in patients with SA < 3 gm% at day 5 should be evaluated.

**46 A Study of Predictors of Mortality of Patients with Acute Respiratory Distress Syndrome**

Khilnani GC, Matzewal AS, Banga A, Pande JN

**Background:** Patients with acute respiratory distress syndrome are commonly admitted to medical ICU. We evaluated patients with ARDS admitted at our medical ICU over last 9 months to define predictors of mortality.

**Objectives:** To study the clinical, acid-base and laboratory profile at presentation, hospital course and outcome of patients with ARDS and to define predictors of mortality in patients with ARDS admitted to medical ICU.

**Study design:** Analysis of prospectively collected data.

**Methods:** 24 patients with ARDS diagnosed on the basis of PaO2/FiO2 ratio less than 200 and bilateral pulmonary infiltrates with no clinical evidence of left atrial hypertension were included. Clinical history, with the underlying cause leading to ARDS, was recorded. Presence of associated non-pulmonary organ dysfunction was looked for. Patient outcome were recorded in the form of days of ventilatory support (DOV), days of hospital stay (DOHS) and ICU stay (DOIS) and survival to hospital discharge.

**Results:** Mean age was 38.9 ± 19.1 yrs. with 58% of patients being males (n=14). Mean duration of history was 21 ± 20 days (range 1 - 90 days) with fever being the commonest symptom. Underlying cause was pulmonary in 16 patients (66%) whereas rest had ARDS due to extra-pulmonary causes. 50% of the patients (n=12) had associated renal dysfunction, whereas 33% of the patients (n=8) had liver dysfunction. DIC was seen in 10 patients (41%). All patients received standard ventilatory support. Over all mortality was 58% whereas mean DOV was 4.2 ± 1.8 days, DOIS was 5.2 ± 2.5 days and DOHS was 11.6 ± 9 days. Only predictors of mortality were serum albumin (SA) levels at presentation (3.2 gm% vs 1.9 gm%, p=0.003) and presence of DIC (nil vs 71%, p=0.009). Patients with extra-pulmonary causes of ARDS had a trend towards better outcome although statistical significance was not achieved (40% vs 71%, p=NS).

**Conclusion:** ARDS continues to be associated with significant morbidity and high mortality. Patients with extra-pulmonary causes may have better outcome. Low SA at presentation and presence of DIC are predictors of poor outcome in these patients.

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**47 Clinical Profile of Patients Admitted in Medical Intensive Care Unit**

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The concept of Medical Intensive Care Unit (MICU) under umbrella of general medicine is a relatively new in India. We carried out a hospital based cross-sectional study to find clinical profile, particularly, mortality pattern of MICU. Only those patients who were on ventilatory support or were likely to require ventilatory support soon were admitted in MICU. A total of 336 subjects admitted from May 2002 to May 2003 formed the basis of present study. Out of these 78 (23.2%) had COPD with respiratory failure, 41 (12.2%) pneumonitis with septicaemia, 37 (11%) hepatic encephalopathy, 34 (10.10%) poisoning, 26 (7.7%) diabetic ketoacidosis and remaining 120 (35.7%) were suffering from seizure disorder, stroke, meninges and renal failure etc, out of these 142 (42.2%) expired. Major cause of death were COPD with respiratory failure, septicaemia, hepatic encephalopathy, acute renal failure, poisoning and ARDS in 43 (30.2%), 27 (19%), 19 (13%), 8 (5.7%), 7 (4.9%) and 7 (4.9%) respectively. Our data indicate that COPD, pneumonitis, septicaemia and hepatic encephalopathy are the most common diseases requiring admission in MICU. Respiratory failure, septicaemia, hepatic encephalopathy and acute renal failure are the major killers in this setting. The high mortality observed in MICU calls for adequate nursing support, laboratory back up and higher order of clinical expertise to manage above condition.

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**Diabetes**

**48 Prevalence of Micro and Macrovascular Complications in Type 2 Diabetes and their Risk Factors**

Agrawal RP, Ranka M, Beniwal R, Sharma S, Purohit VP, Kochar DK, Kota R

S.P. Medical College, Bikaner, Rajasthan

**Objectives:** To determine the prevalence of microvascular and macrovascular complications in type 2 diabetes in India and to identify the major risk factors for these complications.

**Methods:** This prospective study was conducted on 4067 patients out of 4400 type 2 diabetic patients attending the diabetic clinic during Jan. 99 to Dec. 2000. The study sample resembled the population sample in anthropometry, age and socio-economic factors. All patients underwent the specific tests for retinopathy, nephropathy, neuropathy, peripheral vascular diseases (PVD) and cardio-vascular diseases using relevant investigations.

**Results:** We observed evidence of retinopathy in 1176 patients (28.9%), nephropathy in 1323 (32.5%), neuropathy in 1225 (30.1%), CAD in 780 (19.2%) and PVD in 735 patients (18.1%). Multiple
logistic regression analysis revealed that age, duration of diabetes and hypertension were significantly associated with all these complications. Poor glycemic control (increased HbA1C) had definite contribution for increased prevalence of nephropathy and retinopathy.

**Conclusion:** This study highlights the high prevalence of various microvascular and macrovascular complications especially nephropathy and neuropathy in Indian population.

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**49 Randomized Placebo Controlled Study of Granulocyte Macrophage - Colony Stimulating Factor (GM-CSF) in Patients with Chronic Leg Ulcers in Type-II Diabetes Mellitus**

Agrawal RP, Agrawal S, Beniwal S, Joshi CP, Kochar DK
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**Objectives:** Following encouraging reports on the use of granulocyte-macrophage colony-stimulating factor (GM-CSF) to treat wounds in animals and in man, we conducted a study to know the usefulness of this drug in treatment of chronic leg ulcers in type 2 diabetes. **Design:** Randomised placebo controlled study.

**Methods:** Patients received either 400 µg GM-CSF or placebo (saline) in four quadrant perilesional injection weekly. The effect of which was observed weekly and compared with that of placebo injection in a control group.

**Participants:** 32 patients suffering from chronic leg ulcers of type 2 diabetes. **Main Outcome Measures:** Healing response by measuring ulcer size and defined as complete, partial and non-responder.

**Results:** In treated group the difference of mean ulcer area from onset of therapy to the end of treatment was 56.49 while in control group it was 25.84 (p<0.005). Out of GM-CSF treated patients 1 (6.25%) was complete responder and 7 (43.75%) were partial responder by week 1, 2 (12.5%) were complete responder and 14 (87.5%) were partial responder by week 2 while in control group complete responder was 1 (6.25%) and partial responder were 6 (37.5%) by week 2. At the end of study (12 weeks) complete responder were 14 (87.5%) and partial responder were 2 (12.5%) in GM-CSF treated group, while in placebo group complete responders were 4 (25%) and partial responder were 12 (75%). We observe no significant side effect or changes in hematological and biochemical parameters studied.

**Conclusion:** Additional treatment with GM-CSF had further beneficial effect in healing of chronic leg ulcers in type 2 diabetic patients.

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**50 Glimepiride in Type II Diabetes Mellitus**

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**Introduction:** Type 2 diabetes is one of the most prevalent diseases in our country. Treatment of diabetes is aimed at relieving acute complaints of hyperglycemia and diminishing the risk of long term micro and macro-vascular complications, which lead to retinopathy, neuropathy and nephropathy. Glycemic control prevents/delays diabetes related complications. Association of diabetes with cardiovascular disease, management of risk factors is essential. To assess the efficacy and safety of Glimepiride in the treatment of type 2 diabetes.

**Methods:** We studied 50 patients of type 2 diabetes of either sex for total duration of 12 weeks at SSG Hospital, Baroda. Inclusion: Type 2 diabetes - newly diagnosed or on sulphonylurea treatment. Exclusion: Type 1 diabetes, complications of diabetes, pregnancy, lactation. Detailed medical history, physical examination, routine laboratory investigation and biochemical investigations for diabetes to look for complication of diabetes were done. Visit 1-day 1: detailed medical history, physical examination, routine laboratory investigation and biochemical investigations for diabetes-blood sugar-fasting, postprandial, glycosylated hemoglobin and given 14 days drugs. Visit-2-day-16: Physical exam, laboratory investigation, adverse effects were inquired, given 15 days tablets. Visit-3-day-31: same as visit-2, given 30 days tablets. Visit-4-day-61: Physical examination, laboratory investigation, adverse effects were screen, given 30 days tablets. Visit-5-day-90: Physical exam, lab investigation- sugar and glycosylated hemoglobin, adverse effects specifically inquired, terminated the study and advised further course of treatment.

**Results:** Fifty cases of type 2 diabetes; M:F::40:10, age:30-65 years, avg: 42 yrs., biochemical investigation: urea, creatinine, LFT, lipid profile-normal. Hemogram: normal. FBS: day 1: 160mg/dl, day 90: 110 mg/dl, PPSBS: day 1: 256mg/dl, day 90: 172 mg/dl, glycosylated hemoglobin: day 1: 8.2%, day 90: 7.1%. Safety: patients had no side effects/hypoglycemia.

**Conclusion:** The results confirmed, safety of Glimepiride at 1 mg and 2 mg before meals twice a day in type 2 diabetes and control of postprandial hyperglycemia will also reduce FBS in a dependable manner who is also advised appropriate diet, exercise and life style modification. We need to see in type 1 diabetes, whether drug reduces insulin requirement.

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**51 Profile of Diabetic Foot-Our Experience At PMC**

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**Object of Study:** To study the clinical profile of diabetic patient with foot complication in type 2 diabetes

**Methodology:** Type 2 Diabetes mellitus (50 cases) who were treated for diabetic foot complication in our Diabetic Foot Clinic during January 2003 to May 2003, were included in the study after getting their consent. Diabetes with foot complications were evaluated for neurological examination, SEMMES WEINSTEIN 5.07 (10gm) monofilament testing, vibrating tuning fork test, ankle brachial index, foot pulse examination and biochemical profile.

**Summary of Results:** Results of various parameters analysed 43 were neuro infection. Four had vascular involvement, 3 had neuro vascular involvement, 3 had nephropathy, 2 had IHD, and 4 had abnormal lipid profile. Two underwent amputation, 14 had wound debriment, 2 had skin grafting, Bare foot walking present in 20 patients.

**Conclusion:** From the results of our study it can be concluded, diabetic foot mostly due to peripheral neuropathy. In majority due to long standing DM, meticulous diabetic control, foot care and diabetic foot education, can prevent diabetic foot complication and non traumatic amputation.

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**52 BMI - An Independent Predictor of Type 2 Diabetes Mellitus - A Clinical Profile**

Gupta Rajinder Singh, Gupta MM, Kaur K, Rao HK,
Singh AR, Goyal A
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The major chunk of diabetics India is Type 2. The age of onset is a decade earlier and obesity is not a common feature, only about 30% are obese. There is a category of Type 2 diabetics who are lean and underweight with a BMI of less than 18.5. They manifest with visible morbidities and morbidities and mortality patterns as well as biochemical profile and continue to be lean even after years of good metabolic control.

With this background, the present study was conducted in 100 cases of Type 2 DM to study the clinical profile of lean Type 2 DM and compare it with that of non-lean Type 2 Diabetics. Out of these 50 cases were lean (BMI<19) and other cases were non-lean (BMI>9). Patients with h/o DK, age group less than 30 yrs., pregnant women, hepatic disorders and chronic alcohol abusers were excluded.
Mean age group in lean diabetics was 46 yrs. and 46.24 yrs. in the non-lean. Both the groups had male preponderance with M:F ratio of 3:2. Majority of cases were from urban middle class in both the groups. In group I mean BMI was 17.62±2.49 kg/m² which was significantly lower than 25.35±1.64 kg/m² in non-lean group. Similarly WHR was significantly lower in lean diabetics (0.87±0.04) as compared with non-lean diabetics (0.94±0.04). Patients in group I had higher FBS (238.88±25.45 mg/dl v/s 229.88±25.45 mg/dl) and PPBS levels (294.64±38.72 mg/dl v/s 286.64±38.72 mg/dl). However most risk factors for atherosclerosis (serum cholesterol, VLDL, LDL) were significantly lower in group I as compared to Group II. In lean diabetics macrovascular complications like PVD (8% v/s 32%), CAD (12% v/s 36%), HT (12% v/s 36%) and CVA (4% v/s 24%) were significantly less as compared to non-lean diabetics. However there was a higher incidence of neuropathy (48% v/s 20%) and infections (40% v/s 12%). There was no difference in the incidence of retinopathy and nephropathy.

Therefore lean type 2 DM is a distinct clinical and metabolic entity. They are more labile in blood sugar control but have a patient friendly lipid profile and related advantages but have a higher risk of neuropathy and infection.

53 Preliminary Information From Diabetic Camps

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Background And Aim : DM and HT are significantly increasing in our developing campus. Diabetic patients surrounding our campus, belonging to semirural and low socio-economic status, mostly daily wage earners, who have little time for health care, formed our study population. We share our experience in diabetic management of these patients.

Methodology : Four diabetic camps which included free consultations, diabetic education and 2 weeks of treatment were held between April 2002 - March 2003. After detailed history and examination, all subjects received diabetic health education. Where possible, FBS and PPBS, were done, failing which the RBS or PPBS was done.

Results: Two hundred fifty-three subjects attended the camp. Most (52.56%) were in the age group 40-59 yrs. There were 150 (59.28%) known diabetics, (68.66%) were female. Two were newly detected DM, 2 were Type I DM. Out of 150 known diabetics, 95 (63.33%) had increased blood glucose according to National Diabetic Criteria for FBS, RBS, PPBS. 69/126 DM (54.76%) were known hypertensive, in 38 (55.07%) HT preceded DM. In total 150 diabetics 89 (59.33%) had increased BP (SBP>140, DBP>90). Obesity was common with 53/126 (42.85%) having BMI>25.

Conclusions: The RUBAN (rural-urban) population studied has a high rate of associated risk factors like HT and overweight. Diabetic control as assessed by spot FBS/PPBS or RBS is poor in almost two third. Rule of halves of HT, also apply for poor control of DM. We have learnt that they need utmost attention of health care professionals in early detection, control and education on the new epidemic of DM and syndrome X. We in Dr. B.R. Ambedkar Medical College, have the unique privilege of working for them in their environment for management of DM.

54 Dyslipidemia in Non-Diabetic First Degree Relatives of Type 2 Diabetes Mellitus Patients

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Materials and Methods: Forty type 2 diabetes mellitus with forty numbers of their F.D.R. were included in the study. Secondary causes of dyslipidemia were excluded in both groups by history taking, clinical examinations and appropriate laboratory tests. Fasting lipid profile comprising of serum cholesterol, triglyceride and HDL-C were done in automatic analyser and VLDL-C, LDL-C values were calculated out by using Friedwald equation.

Observation: Mean cholesterol, triglyceride and LDL - C values were below normal (i.e. cholesterol < 200 mg / dl, triglyceride < 150 mg/dl and LDL-C <130 mg/dl) but diabetics showed higher values than F.D.R. and 15% diabetics had LDL-C level 130 mg/dl. 67.5% of diabetics and 95% of F.D.R. were having HDL-C values below normal (i.e. < 40 mg/dl in males and < 45 mg/dl in females). 22.5% diabetics and 30% F.D.R. were having cholesterol / HDL-C ratio > 5, while LDL-C/HDL-C ratio > 3.5 were found in 12.5% of diabetics and 20% of F.D.R. (Atherogenic ratio).

Conclusion: F.D.R. of type 2 diabetes mellitus patients showed very high incidence of low HDL-C level, perhaps prevalence of more of insulin resistance in them, thus predisposing them to atherogenic profile even if they are normoglycemic and this makes a need of creating awareness in them.

55 QT Dispersion (QT_d) in Patients of Diabetes Mellitus with or without Cardiac Dysautonomia

Chugh SN, Pranod, Jagdish
Pt. B.D. Sharma PGIMS, Rohtak

Recently, a great emphasis has been laid on the surface electrocardiographic parameters i.e. the QT interval and QT_d as indices of autonomic dysfunction in diabetes. The QT interval represent overall ventricular depolarisation cum repolarisation. The QT_d represents the interlead variability of QT intervals measured from ECG. The QT and QT_d are influenced by a number of physiological factors including heart rate, BP, exercise, diurnal variation, postural variation or sinus arrhythmias. The prolongation of QT_d in diabetes has been a matter of conjecture and inconsistencies, hence, this study.

Material and Methods: Fifty patient of diabetes irrespective of age, sex, type of diabetes were included along with ten healthy volunteers. The diagnosis of diabetes was made according to WHO (1999) criteria patients with heart disease, respiratory disease, renal disease, liver disease, hypertension, arrhythmias, electrolyte imbalance and CVA were excluded.

The diagnosis of autonomic neuropathy was made by cardiovascular autonomic function tests. The patients were divided as follows: Group 1 (n=25) - It included patients with autonomic dysfunction. Group 2 (n=25) - It included patients without autonomic dysfunction. Group 3 (n=10) - Normal control.

A 12 lead surface ECG was done to calculate QT_d.

Results: The mean age, sex BMI was comparable in two groups. The mean QTcd in group I was 57.48 ± 8.06ms which was prolonged than the controls (29.8±6.57ms). The QTcd in group 2 was 27.2±7.14 ms which as more or less normal. The overall QTcd in both the groups combined was 42.34±17.05ms. The QT_d was compared within groups (early vs late involvement).

Conclusion: The QT_d and QT_d have been found prolonged in patients of diabetes with autonomic dysfunction but not in patients without dysfunction. The subject will be discussed.

56 Effects of Losartan Treatment on Persistant Microalbuminuria in Normotensive Type 2 DM

Ray Sujay, Mukhopadhyay Jotdeb, Giri Debasis, Ray Pranabesh
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Introduction: Microalbuminuria denotes an incipient stage of nephropathy in diabetic subjects and it also carries an independent risk
This prospective study comprised 85 subjects (Type 2 diabetics) and 10 first degree relatives. Subjects were evaluated for standard risk factors: fasting and PP plasma glucose and insulin, HbA1C, Lipids and Lipoproteins, urine for microalbuminuria, USG B mode for IMT, TMT and echocardiography. Insulin resistance was estimated applying HOMA (IR) model.

**Result:** Among 85 patients; 44.7% were obese with BMI>25 Kg/m² (25.3±3.4); microalbuminuria in 29.41% (36±93.4) mg/l; 47.05% were hypertensives (135.1±17.6; 85.4±10.1) mmHg; IMT was increased in 17.64% subjects (>0.8 mm); with 22.35% plaques, stenosis and abnormal findings (p<0.05). TGA was increased in 37.64% (1.92±1.10) mmol/L and HDL was reduced in 40% (1.14±0.146) mmol/L; 92.9% were insulin resistant (HOMA>4) (8.63±4.59) (p<0.05). Cardiovascular disease evidenced with ischemia in EKG in 12.94% (p<0.05), TMT positive in 23.52% (p<0.05) and abnormal echocardiography in 18.82% (p<0.05). Five out of 10 first degree relatives were insulin resistant. After age and sex adjustment IMT in the diabetic group was correlated to TGA and total-to-HDL (c) ratio and showed IMT significantly correlated to both and inversely correlated to HDL (c).

**Conclusion:** Data suggest association of insulin resistance with carotid IMT and it positively correlated with cardiovascular disease in type 2 diabetics and increases risk further in their first degree relatives.

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**58 Insulin Resistance, Intima Medial Thickness in Relation to Macrovascular Disease in Newly Detected Type 2 Diabetics and Their First Degree Relatives**

Ahmad J, Das G, Rabbani MJ, Ahmad I, Hameed B.

**Objective:** To examine insulin resistance, carotid IMT and its determinants in relation to macrovascular disease in newly detected type 2 diabetic subjects (<1 yr.) and their first degree relatives.

**Method:** Prospective study of 85 subjects (Type 2 diabetics) and 10 first degree relatives. Subjects were evaluated for standard risk factors: fasting and PP plasma glucose and insulin, HbA1C, Lipids and Lipoproteins, urine for microalbuminuria, USG B mode for IMT, TMT and echocardiography. Insulin resistance was estimated applying HOMA (IR) model.

**Result:** Among 85 patients; 44.7% were obese with BMI>25 Kg/m² (25.3±3.4); microalbuminuria in 29.41% (36±93.4) mg/l; 47.05% were hypertensives (135.1±17.6; 85.4±10.1) mmHg; IMT was increased in 17.64% subjects (>0.8 mm); with 22.35% plaques, stenosis and abnormal findings (p<0.05). TGA was increased in 37.64% (1.92±1.10) mmol/L and HDL was reduced in 40% (1.14±0.146) mmol/L; 92.9% were insulin resistant (HOMA>4) (8.63±4.59) (p<0.05). Cardiovascular disease evidenced with ischemia in EKG in 12.94% (p<0.05), TMT positive in 23.52% (p<0.05) and abnormal echocardiography in 18.82% (p<0.05). Five out of 10 first degree relatives were insulin resistant. After age and sex adjustment IMT in the diabetic group was correlated to TGA and total-to-HDL (c) ratio and showed IMT significantly correlated to both and inversely correlated to HDL (c).

**Conclusion:** Data suggest association of insulin resistance with carotid IMT and it positively correlated with cardiovascular disease in type 2 diabetics and increases risk further in their first degree relatives.

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**57 Correlation of Common Carotid Intima-Media Thickness with Risk Factors for Atherosclerosis and Atherosclerotic Events in Diabetic Patients**

Aftab SAS, Sudha V, Dixit US, Shetty CK

**Object of the study:** Complications due to atherosclerosis are common in diabetic patients. Close monitoring, prompt investigations and quick interventions are necessary to reduce the morbidity and mortality. Common carotid intima media thickness (CCIMT) is currently being used as a marker of pan-atherosclerosis and is known to be higher in diabetic patients than in non-diabetics. The aim of the present study was to correlate the CCIMT with risk factors for atherosclerosis and with atherosclerotic events in diabetics and thus assess its utility in predicting vascular prognosis.

**Methodology:** Seventy type 2 diabetic patients of mean age 61.02±10.2847 (mean±SD) were selected and their CCIMT was measured using high resolution B-mode ultrasonography. These values were then correlated with age, duration of diabetes, blood glucose levels, risk factors for atherosclerosis and atherosclerotic events. Regression analysis, correlation coefficient and student’s ‘t’ test were used for statistical analysis.

**Results:** The mean value of CCIMT was found to be significantly higher in those diabetic patients who had atherosclerotic events being 1.0084±0.1099mm vs 0.86204±0.132mm in diabetics with risk factors for atherosclerosis but no events (p<0.0015). Duration of diabetes, age, systolic blood pressure and fasting blood glucose level had correlation with morphological abnormalities, while CCIMT was noted as a strong predictor of atherosclerotic events in diabetic patients.

**Conclusion:** As CCIMT was more in those diabetics who had atherosclerotic events as compared to diabetics with only risk factors for atherosclerosis but no events, this noninvasive investigation is beneficial and advantageous in follow up of diabetic patients to evaluate vascular prognosis. CCIMT may be used as a guide to start primary prophylaxis with Anti platelet drugs to prevent atherosclerotic events, thereby reducing the bad outcomes in diabetics and improving their quality of life.
hypertension (138.2±8.4; 86.2±4.6 mm Hg). 83.72% of patients had insulin resistance (HOMA >4). Carotid IMT of the patients with fasting hypertriglyceridaemia was greater than that of pts. with normal fasting TG (FTG) levels (0.82±0.13 vs 0.76±0.16 mm), carotid IMT was increased in patients with pTG levels >2.27 mmol/l. The normo-normo (NN) and normo-hyper (NH) groups consisted of patients with normal FTG levels but with pTG levels <2.27 mmol/l and >2.27 mmol/l, respectively. Patients with both fasting hypertriglyceridaemia and pTG levels >2.27 mmol/l formed the hyper-hyper (HH) group. Carotid IMT was significantly increased in the NH (0.85±0.14 mm) and HH (0.83±0.15 mm) groups compared with the NN group (0.76±0.13 mm). Although postprandial plasma glucose, pTG and fasting LDL cholesterol levels were all independently correlated with carotid IMT, pTG levels had the strongest statistical significance.

**Conclusion:** This data suggests that postprandial hypertriglyceridaemia despite normal FTG levels may be an independent risk factor for early atherosclerosis in type 2 diabetes mellitus.

### 60 Post-prandial Hyperglycemia Relationship with Micro and Macrovascular Complication

**Shaila SK, Das Prasanna K, Nayak J, Mohanty R, Das SN, Roy G, Mohapatra N**
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**Aim:** The aim of the study is to detect subjects with: i. IGT (FPG<126 mg/dl 2 hr. Post Glucose Plasma Glucose > 140, < 200 mg/dl), ii) 1st time diabetics with FPG:N 2 hr PGPG > 200 mg/dl, iii) Diabetes on treatment with post-prandial hyperglycemia, and to correlate the incidence of micro and macrovascular complications with post-prandial plasma glucose levels.

**Materials and Methods:** Study conducted at SCB Medical College and Hospital, Cuttack, Orissa from January 2001 to January 2003. Forty cases were taken having IGT, 1st time detected diabetes (FPGN, 2 hr. PGPG > 200 mg%) and known diabetics on therapy having post-prandial hyperglycemia. Alcoholics, smokers and known hypertensives were excluded from the study. All the patients were subjected to detailed clinical and lab. examinations stressing on nephropathy, retinopathy, neuropathy, CAD, cerebrovascular disease and peripheral vascular disease.

**Results:** Out of forty cases IGT 8, 1st time detected diabetes 13 and diabetes on therapy with post-prandial hyperglycemia 19. None of IGT group had microvascular complications. Six cases had microalbuminuria (<300 mg/D) and eight cases had macroalbuminuria (>300 mg/D). Six cases had retinal lesions. CAD was observed in seven cases. CVA was seen in seven cases. Peripheral neuropathy was observed in four cases.

**Conclusion:** The study concludes the association of postprandial hyperglycemia as an independent risk factor for micro and macrovascular complications. Increase in post-prandial blood sugar increased the number of macrovascular disease. Hence it is of equal importance to control fasting as well as post-prandial hyperglycemia.

### 61 Lawrence Syndrome: A Case Report

**Sivakumar R, Pari L, Harinharan RS, Chitrambalam P, Sripriya H, Padmahushan B**
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Lipodystrophic diabetes (Lawrence syndrome) is a rare syndrome characterised by absence of subcutaneous tissue and insulin resistant diabetes. We from Government General Hospital (Madras Medical College) report a case of lawrence syndrome in a young girl presenting with fever, cough and weight loss. Most of the clinical features described by Lawrence were present in the above case in which glycemic control was achieved by insulin sensitisers.

### 62 Acute if Reversible Bilateral Metabolic Cataract with Treatment of Hyperglycemia: The Bane of Some Diabetic Patients

**Srivastava Vivek, Ghoshal Anupam**
Army Hospital, New Delhi

A sixteen year old school girl was diagnosed to have type 1 diabetes mellitus when she reported with primary amenorrhoea and inability to gain height, the usual presenting symptoms and signs of diabetes i.e. weight loss, polyuria, polydipsia, weakness were absent. Clinical and laboratory evaluation at presentation revealed no evidence of retinopathy, nephropathy, neuropathy or macrovascular complications of diabetes mellitus. Visual acuity was also normal. Following four weeks of insulin therapy, she was brought with complaints of blurring of vision and inability to read her books. On examination she had only perception and projection of light in both eyes with fine, streaky lenticular opacities radiating from the periphery. Glycemic control was satisfactory. Patient was admitted and insulin therapy was monitored strictly to maintain normoglycemia. Despite meticulous control, by day four the cortical changes progressed to involve the central posterior subcortical area and by the tenth day she became completely blind while the opacities organised into bilateral dense cataracts. No improvement was observed during the next three months. Phacoemulsification and posterior chamber intra-ocular lens implantation was done in the right eye, followed three months later by the same procedure in the left eye. Visual acuity of 6/6 has been achieved with a small cylindrical lens correction in both eyes. Insulin therapy has been titrated with pen device. She has not developed any other complications of diabetes mellitus in the one year since then.

Review of literature reveals that this occurrence of acute metabolic or true diabetic cataract is rare in contrast with that seen in long standing poorly controlled diabetes mellitus. It occurs in less than 1% of patients, is typically posterior subcapsular in location and is usually seen in patients presenting with prolonged or extreme hyperglycemia, ketoadacidosis or hyperosmolar states. Some cataracts have also been documented to develop acutely on institution of treatment for diabetes. All such lenticular changes are usually transient and reverse during follow-up. Our patient belongs to a rarer subgroup of patients who develop irreversible cataract following treatment. A diligent literature search revealed three case reports of a total of six patients.

### 63 Profile of Peripheral Vascular Disease in Type 2 Diabetes Mellitus of Less Than 1 Year Duration From Detection

**Datta S, Datta Sj, Biswas D, Roy AC, Ghosh US, Banerjee S**
Department of Medicine, NRS Medical College, Kolkata

**Background:** Macrovascular complications of diabetes mellitus is a known debilitating complication of type 2 diabetes. Various factors other than hyperglycaemia can predispose it and various clinicobiochemical markers can be used as an indicator of its presence and extent.

**Aims and Objectives:** Search for a simple clinical and/or biochemical marker for the earliest detection of peripheral vascular disease in type 2 diabetes for early intervention, if possible.

**Methodology:** Patients of both sexes with detection of diabetes within the past 1 year were selected over a period of 1 year. Doppler study of the lower limb arteries was done. Both male and female groups were segregated into Doppler +ve and Doppler -ve groups. Intra group age. BMI, systolic and diastolic B.P. smoking and non-smoking status were matched. Clinical points noted were abnormal foot, intermittent claudication, ankle brachiial pressure index (non-sonologically), non-palpable peripheral pulses (DPA, TPA) and ECG. Biochemical
Blood was drawn by vein puncture, from Int. Claud. Intermittent claudication, Abn. Foot: Abnormal foot, NP Pulse: Nonpalpable
HDL
Urine Alb (normal)
ABPI
N.P. pulse
Int. Claud.
Doppler
Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Male (6)</th>
<th>Female (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doppler</td>
<td>+VE(5)</td>
<td>+VE(5)</td>
</tr>
<tr>
<td>Int. Claud.</td>
<td>3 0</td>
<td>0 0</td>
</tr>
<tr>
<td>Ano. Foot</td>
<td>3 1</td>
<td>0 1</td>
</tr>
<tr>
<td>N.P. pulse</td>
<td>2 0</td>
<td>0 0</td>
</tr>
<tr>
<td>ABPI</td>
<td>0.9 ± 1.06 ± 0 P &lt; 0.005</td>
<td>0.9 ± 1.08 ± 0 P=0.025</td>
</tr>
<tr>
<td>ECG</td>
<td>0.025</td>
<td>0.04</td>
</tr>
<tr>
<td>Urine Alb</td>
<td>5 1</td>
<td>2 3</td>
</tr>
<tr>
<td>LDL</td>
<td>44.25 ± 4.92</td>
<td>44.25 ± 4.92</td>
</tr>
</tbody>
</table>

parameters assessed included urine albumin (macro), LDL, HDL and VLDL. Intra-group comparison was done with these parameters by student’s ‘t’ test done on SE of Means and SE of proportions. P value < 0.05 was taken to be significant. (See results in Table)

**Results:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>M (5)</th>
<th>F (2)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doppler</td>
<td>+VE</td>
<td>+VE</td>
<td>-</td>
</tr>
<tr>
<td>Int. Claud.</td>
<td>0.9±0.025</td>
<td>0.9±0.04</td>
<td>NS</td>
</tr>
<tr>
<td>Ano. Foot</td>
<td>20.51±1.5</td>
<td>27.35±1.56</td>
<td>&lt;0.005</td>
</tr>
<tr>
<td>N.P. pulse</td>
<td>8.81</td>
<td>9.19</td>
<td>7.02</td>
</tr>
<tr>
<td>ABPI</td>
<td>44.25±4.92</td>
<td>44.25±4.92</td>
<td>&lt;0.005</td>
</tr>
<tr>
<td>ECG</td>
<td>27.35±1.56</td>
<td>27.35±1.56</td>
<td>&lt;0.005</td>
</tr>
<tr>
<td>Urine Alb</td>
<td>19 ± 5.66</td>
<td>19 ± 5.66</td>
<td>NS</td>
</tr>
<tr>
<td>LDL</td>
<td>19 ± 5.66</td>
<td>19 ± 5.66</td>
<td>NS</td>
</tr>
<tr>
<td>HDL</td>
<td>19 ± 5.66</td>
<td>19 ± 5.66</td>
<td>NS</td>
</tr>
<tr>
<td>VLDL</td>
<td>19 ± 5.66</td>
<td>19 ± 5.66</td>
<td>NS</td>
</tr>
</tbody>
</table>

Introduction: DM is the commonest endocrine disease in the population. In type II DM - the association with thyroid disease is unexplained, though it may relate to the older age of type II DM patients. Unrecognized thyroid failure can lead to difficulty in management of diabetes.

The prevalence of thyroid dysfunction in females with type II DM, compared to males with type II DM. Subclinical hypothyroidism is the most common thyroid abnormality detected. This study justifies the view that screening for thyroid disease should be undertaken in all patients with diabetes mellitus.

**Prevalence of H. pylori Infection in Type 2 DM in Rural Rajasthan - A Case Control Study**

Pareek RP, Kannan M
Medical Centre, BITS, Pilani

Introduction: H. pylori is a Gram-negative, spiral, flagellate bacillus and is the single most common cause of peptic ulcer. Nearly 50% of the Indian population harbors the bacterium. Past reports suggest a relationship between H. pylori and DM, indicating that the prevalence of the infection in the diabetic population is significantly higher than in controls. However, some studies have reported that there is no association between the two.

**Aim:** The objectives of the present study was to determine the prevalence of H. pylori infection in Rural Rajasthan and also find if there is any significant correlation between H. pylori Infection and Diabetes Mellitus (DM).

**Material and Methods:** Blood was drawn by vein puncture, from 33 diabetics and 39 age and sex matched healthy controls, after taking their informed consent. The population consisted of people from villages around Pilani (Jhunjhunu district, Rajasthan.) Complete history of illness was obtained and recorded in separate sheets. Diabetes was diagnosed according to the American Diabetes Association revised criteria. Blood
sugar was estimated by enzyme method. It was ensured that controls had no signs or symptoms of gastrointestinal disease. Persons on steroids or NSAIDs, those suffering from bleeding disorders, unstable cardiac or pulmonary disease, and those with past H. pylori infection or on drug regimen for H. pylori infection were not included in the study. Serum was tested for antibodies to H. pylori by ELISA test. Results and Observation:

Summary of ELISA test

<table>
<thead>
<tr>
<th></th>
<th>Diabetic population (n=33)</th>
<th>Control population (n=39)</th>
<th>Total population (n=72)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H. pylori positive</td>
<td>29 (88%)</td>
<td>26 (67%)</td>
<td>55</td>
</tr>
<tr>
<td>H. pylori negative</td>
<td>4 (12%)</td>
<td>13 (33%)</td>
<td>17</td>
</tr>
</tbody>
</table>

The Chi-square test was performed for testing the alternative hypothesis that “there is a significant difference between the prevalence of H. pylori infection among diabetics and controls” against the null hypothesis that “there is no such difference”. Among 33 diabetics, 4 were negative for H. pylori infection. \( \chi^2 = (29-16.5)^2 / 16.5 + (4-16.5)^2 / 16.5 = 18.94 \) Degree of freedom = 1 \( p < 0.005 \)

Discussion and conclusion: It has been widely reported that the prevalence of H. pylori in developing countries is about 80%; Indian figures are lesser (about 50%). Our finding (prevalence rate of 67%) is also consistent with that reported. In this study, we have found a significant association between H. pylori and diabetes mellitus, the prevalence of the pathogen was much higher in diabetics than controls. Since diabetes mellitus affects both the cellular and humoral components of the immune system, colonization of H. pylori is not prevented efficiently. Diabetics suffering from autonomic neuropathy, manifested, as gastropathy may be more prone to H. pylori infection. Another possible hypothesis states that the presence of circulating antigens like sialic acid in diabetic patients, act as a specific receptor for H. pylori on the cell surface.

67 Study of Serum Magnesium Levels in Patients of Type 2 DM

Prashant CK, Hande HM, Rajeev M, Acharya RV, Rau NR
Kasturba Medical College, Manipal.

Aim: To study, serum magnesium levels in cases of Type 2 DM. Correlation of Magnesium levels with complications of DM.

Material and methods: Cases of Type 2 DM with exclusion criteria applied for patients with other conditions causing hypomagnesemia or hypermagnesemia. Clinical and laboratory evaluation for complications of Type 2 DM. Study period: June 2003 - December 2003. Preliminary Study: 20 Patients

Normal Magnesium: 1.6 - 2.6

<table>
<thead>
<tr>
<th></th>
<th>Diabetic population (n=33)</th>
<th>Control population (n=39)</th>
<th>Total population (n=72)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2:</td>
<td>5% (1)</td>
<td>1.8: 20% (4)</td>
<td></td>
</tr>
<tr>
<td>1.5:</td>
<td>10% (2)</td>
<td>1.9: 10% (2)</td>
<td></td>
</tr>
<tr>
<td>1.6:</td>
<td>10% (2)</td>
<td>2.0: 5% (1)</td>
<td></td>
</tr>
<tr>
<td>1.7:</td>
<td>35% (7)</td>
<td>&gt;2: 5% (1)</td>
<td></td>
</tr>
</tbody>
</table>

Preliminary study reveals low normal magnesium levels in majority of cases of Type 2 DM with most of the patients having complications. Study is underway to assess correlation of levels of Magnesium with complications of Diabetes Mellitus and to compare with those of an age and sex matched control population.

68 Comparison of Clinical and Angiographic Profile in Ischemic Heart Disease in Patients with and without Diabetes

Bagchi Soumita, Shah AN, Shah VV, Patel MN, Subramanyam N, Desai S, Patel N, Rajendran Deepa
BJ. Medical College and Civil Hospital, Ahmedabad.

Aims: To ascertain any difference in the clinical presentation and angiographic profile of coronary artery disease (CAD) between diabetic and non-diabetic patients.

Materials and methods: Total 50 number of CAD patients with diabetes were randomly selected for study (group A) and results were compared with control of 25 CAD patients without diabetes (group B). All patients were evaluated with detail history, examination and lab investigations including FBS, PPBS, lipid profile; 12 lead ECG; 2D echocardiography and coronary angiography (CAG) done.

Results: The mean age of patients in both groups was 6th decade (group A-52±10.4 years; group B-56.7±9.3 years) with higher female proportion in group A (26% vs 16%). In group A no chest pain (silent ischemia) was seen in 28% compared to 8% of group B. However most of the patients showed angina equivalents except 4% of patients which were totally asymptomatic in group A and that was not clinically significant. However no significant difference of incidence of myocardial infarction (MI) or congestive cardiac failure (CHF) was found in both groups, post MI arrhythmias and LV dysfunction (LVD) were statistically significant in group A than group B (p<0.05). Among other risk factors for CAD hypertension and dyslipidemia were significantly more common in the group A (p<0.001; p<0.005). On CAG significantly higher incidence of severe disease (i.e. double and triple vessels disease) was found in group A (p<0.05). However the pattern of vessel involvement was similar in both groups with most commonly involved was left anterior descending artery. The severity judged on CAG was not correlating with severity or duration of diabetes but definitely correlated with poor glycemic control (p<0.05).

Conclusion: Silent ischemia and atypical symptoms (angina equivalent) were more frequent in diabetic patients. No big difference in incidence of MI or CHF in diabetic or non-diabetic patients. Post MI arrhythmias and LVD is more common in diabetics. Atherosclerotic CAD is more severe in diabetics making diabetes an independent risk factor for macrovascular disease. Though no correlation between severity of CAD and duration of diabetes was found, proper control of diabetes definitely prevent/reduces the progression of disease.

69 Prevalence of Impaired Fasting Blood Glucose in A Random Healthy Population

Gopinath S, Raju GC, Kalanidhi A, Usha RK
Southern Railway Hospital, Perambur.

Aim: To detect the presence of Impaired fasting blood, sugar in a random healthy population aged between 15 and 40 yrs.

Methodology and Summary: A hundred healthy persons in the age group 15 to 40 yrs. was selected from the health workers, hospital staff and apparently healthy relatives of patients admitted in the hospital. All persons were subjected to routine clinical examination which included height, weight, waist, hip measurements and blood pressure reading. Family history of diabetes and gestational diabetes enquired into. Fasting venous blood samples were obtained and sent for analysis. The results were tabulated.

Conclusion: We have studied the correlation between various factors like waist hip ratio, blood pressure and the presence of impaired fasting glucose. A prevalence of 6% was found in the population studied. A large population will be required to be studied over a longer period.
Type 2 diabetes mellitus (DM) carries a substantially increased risk of atherosclerosis and enhanced oxidative stress may play an important role in the etiology of diabetic atherosclerotic vascular disease. Although few studies investigating the role of oxidative stress in diabetic patients with coronary artery diseases are available, not much work has been done in patients with peripheral vascular disease and cerebrovascular disease. The present study was undertaken to evaluate the role of oxidative stress in diabetic macroangiopathy especially in the later two groups. Various oxidative stress parameters were estimated in 30 healthy controls (group 1). Thirty type 2 diabetic patients without macroangiopathy (group 2) and 30 type 2 diabetic patients with macroangiopathy (group 3). Oxidative stress (serum malondialdehyde; p= 0.021) was found to be higher in diabetic subjects with macroangiopathy as compared to those without macroangiopathy and healthy controls. Also, an overall reduction in antioxidant status (decreased reduced glutathione content (GSH), and decreased activities of superoxide dismutase (p<0.01) and catalase (p<0.001)) was observed in both diabetic groups compared to controls. It can be concluded from the present study that enhanced oxidative stress in diabetes with a reduced antioxidant defense mechanism may play an important role in the pathogenesis of diabetic macroangiopathy.

Clinical Study on Metabolic Syndrome

Introduction: The Indian subcontinent is becoming the diabetic capital of the world, with every 3rd diabetic being an Indian by the year 2025. The quartet of central obesity, hypertension, dyslipidemia and insulin intolerance constitutes syndrome X/Metabolic syndrome. Data on syndrome X from Indian subcontinent are very few.

Aim of the study: Clinical study of patients with metabolic syndrome in comparison to diabetic non-metabolic syndrome.

Methodology: Fifty patients with syndrome X were selected according to NCEP ATP III criteria. (1. Obesity - waist; male: >102 cm, female: >88cm, 2. TG ≥ 150 mg/dl, 3. HDLc – male<40 mg/dl, female<50 mg/dl, 4. BP ≥ 135/85 mm Hg, 5. FBS ≥ 110 mg/dl. 3 or more criteria is diagnostic). Their clinical profile was compared with diabetic non-metabolic syndrome patients.

Results:

<table>
<thead>
<tr>
<th>BP</th>
<th>Waist</th>
<th>TG</th>
<th>HDL</th>
<th>FBS</th>
<th>Neur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metabolic Syndrome</td>
<td>144/91</td>
<td>97.2</td>
<td>222.7</td>
<td>41.7</td>
<td>177.5</td>
</tr>
<tr>
<td>Controls</td>
<td>127/80</td>
<td>85.6</td>
<td>108.4</td>
<td>49.8</td>
<td>137.2</td>
</tr>
</tbody>
</table>

Conclusion: Glycemic and lipidemic control was poor in syndrome X pts. More prone to suffer from abdominal obesity, high BMI and high BP. These patients are at higher risk of developing both microvascular and macrovascular complications. Hence more intensive pharmacotherapy, weight control and dietary measures are required for patients diagnosed to have syndrome X to prevent complications.

Assessment of Oxidative Stress in Type 2 Diabetic Patients with and without Macroangiopathy

Singhania N, Madhu SV, Puri D, Sharma SB
Departments of Medicine and Biochemistry UCMS and GTB Hospital, Delhi -110095.

Pioglitazone in Secondary Oral Hypoglycaemic Agent Failure

Swamy AJ, Singh G, Narula AS, Mehta SR
12 Air Force Hospital, Gorakhpur, Command Hospital, Lucknow.

Type 2 Diabetes Mellitus (D.M.) and Correlation of Cardiovascular Disease (CAD) with Non-HDL Cholesterol and Other Modifiable CAD Risk Factors

Gupta Vivek, Lohani KK, Kethari S.
UCMS Teaching Hospital, Bhairahawa, Nepal.

Thus, CAD tends to occur in approximately 19% (1/5) of type 2 diabetics. It can be inferred from the above table that raised non-HDL cholesterol of > 150 mg% is an important risk factor for CAD in type 2 D.M. along with other conventional risk factors e.g. TC/HDL >5, raised triglycerides >150 mg%, reduced HDL <40 mg%, hypertension (140/90 mm Hg), obesity (Waist hip ratio >0.85) and smoking. Non-HDL cholesterol is inexpensive and can be estimated in a non-fasting state regardless of the triglyceride concentration but larger studies are needed to confirm our findings.