1. Which BMI (Body Mass Index) Accurately Predicts Obesity in Indians?

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Background: Indians are at a high risk for the development of premature atherosclerosis and related to complications even at lower BMI as compared to western population.

Objectives: This study attempted to establish appropriate cut off levels of BMI for diagnosing obesity considering ≥ 30% BF (% Body fat) in females and ≤ 25% BF in males as obesity.

Methods: A total of 104 healthy volunteers (56 males and 48 females) participated in the study. Clinical examination and anthropometric measurements were performed and % BF was calculated by measuring skin fold thickness at four sites (triceps, biceps, suprailiac, subcapular) and using equations of Durnin and Womersley. Correlation of % BF by this method and densitometry ranges from 0.7 to 0.9 in different age groups.

Results: Mean BMI in males was 23.039 (SD = 3.96) and in females was 23.481 (SD = 4.968) mean % BF in males was 23.571 (SD = 7.227) and in females was 33.056 (SD = 6.180) receiver operating characteristic (ROC) curve analysis showed a low sensitivity (15.2%) of the conventional cut off value of the BMI. Operating characteristic (ROC) curve analysis showed a low sensitivity (15.2%) of the conventional cut off value of the BMI (30 kg/m²) in identifying subjects with obesity based on % BF. Based on the ROC curve a lower cut off value of the BMI of 23 kg/m² in males showed a optimal sensitivity (91.3%) and specificity (81.8%) and sensitivity (93.9%) and specificity (93.3%) and less misclassification (14.3%). A BMI of 20 in females showed optimal sensitivity (93.9%) and specificity (93.3%) and less misclassification (6.25%).

Conclusions: In Indian population existing BMI criteria under estimates obesity when % BF is used as a standard to define obesity.

2. Polycystic Ovarian Disease - Concern of Young Women

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Aim: To study the clinical profile of patients of polycystic ovarian disease (PCOD). To study the efficacy of metformin in PCOD.

Material and Methods: Fifty-two young women of PCOD diagnosed in the endocrine outpatient department of a teaching hospital, over a period of two years were evaluated. Thirty-four patients were given metformin and 18 patients were advised only weight reduction and hormones for menstrual regularization.

Observations: Mean age was 19 years. Common presenting symptoms were excessive weight gain, menstrual irregularities, abnormal hair growth, skin pigmentation and infertility. All were obese. Hirsutism was present in 50%. All had acanthosis nigricans. Excessive skin pigmentation was present in 20%. Five patients had primary infertility and two had secondary infertility.

Diagnosis was based on clinical finding, ultrasound pelvis, abdominal or transvaginal. CT scan abdomen was done in 15 patients. FSH and LH ratio was obtained.

During follow up, patients receiving metformin treatment showed significant reduction in hirsutism. Skin pigmentation decreased with fading of acanthosis nigricans in almost all. Sixty two percent females had near normalization of their menstrual cycles. Two of the infertile patients conceived during the study period.

Conclusion: Diagnosis of PCOD is increased due to improvised technology. Metformin is definitely beneficial in them.

3. Study of Thyroid Function Status in Patients of Chronic Renal Failure

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Aims of the Study: To estimate Serum T₃, T₄, TSH in patients of Chronic Renal Failure with special reference to (1) Biochemical abnormalities of thyroid functions in CRF, (b) To correlate between severity of CRF and alteration of thyroid indices, (c) Effect of conservative management Vs haemodialysis on thyroid indices.

Material and Methods: Twenty cases of CRF patients admitted to Department of Medicine and Nephrology, VSS Medical College, Burla from January 2003 to December 2003 were taken for the study. CRF was diagnosed by the criteria given by ‘Harrison’s Principles of Internal Medicine’ Edn. 15th. Individuals with known thyroid disease and those on antithyroid drugs, iodine intake were not included in the study. Serum T₃, T₄, TSH and free T₃, T₄ was done in all patients on admission and repeated at 3rd, 6th, 12th months during follow up and results were compared. Severity of renal failure was grouped according to GFR and the value of T₃, T₄, TSH was compared between groups.

Observation: Out of 20 CRF patients in this study, male (80%) commonest presenting features anorexia (80%), puffiness of face (70%), oliguria (50%). All patients were anaemic, 70% had hypertension. Commonest cause of CRF was diabetes (50%), hypertension (20%), chronic glomerulonephritis (10%), chronic pyelonephritis (5%), no cause found in 15%, TSH was normal in 17 cases. Only 3 cases had increased TSH. 16 cases had low T₄, 13 cases normal T₄, only 7 cases had decreased T₄. No significant improvement in T₄, T₃, TSH was seen in patients receiving conservative management. However haemodialysis reverted the abnormality partially. Severity of renal failure and thyroid dysfunction with respect to T₃ was found to be significant.

Conclusion: From the study it can be presumed that, there occurs a state of biochemical hypothyroidism in patients of CRF and extent of thyroid dysfunction depends upon the severity of renal failure. The low T₄ is not due to increased T₄ degradation or decreased T₄ secretion, but as a result of impaired extrathyroidal T₄ to T₃ conversion. The reduction in T₄ is due to presence of circulating inhibitors which impair binding of T₄ to Thyroxin binding globulin. Conservative management does not improve thyroid status though haemodialysis partially reverts back the abnormality.
Study of Correlation of CRP with % Body Fat and Ponderal Index in Healthy North Indian Population

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Objective: To assess the association of circulating levels of C-reactive protein (CRP) with measures of obesity (% Body fat and Ponderal index) in Healthy North Indian Population.

Methods and Results: One hundred healthy subjects in age group of 20-55 years were enrolled (50 males and 50 females). % Body fat was calculated by Durnin and Womersly equation after group of 20-55 years were enrolled (50 males and 50 females). % Body fat was calculated by Durnin and Womersly equation after measuring total subcutaneous thickness. CRP levels were measured by quantitative immunoturbidimetric method. Mean CRP level was 5.57 (SD ± 3.00, range: 8.0-15.4 mg/L). CRP showed positive correlation with % Body fat (r = 0.509, P < 0.0001) and Ponderal index (r = 0.824, P < 0.0001). The correlation of CRP with % Body fat in both female (r = 0.602, P < 0.0001) and male subgroup (r = 0.543, P < 0.0001) were significant. Similarly it was significantly correlated with Ponderel Index in male (r = 0.543, P < 0.0001) and female subgroup (r = 0.825, P < 0.0001) when analyzed separately.

Conclusion: Our study has shown a positive correlation of CRP with % Body Fat in Ponderel Index, major obesity in both males and females. There our findings suggest a state of low grade systemic inflammation in overweight and obese population.

CRP and Its Correlation with Body Mass Index (BMI) in Healthy North Indian Population

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LHMC (Lady Hardinge Medical College), and Associated Hospital, New Delhi - 110 002.

Objective: To assess the association of circulating levels of C-reactive protein (CRP) with Body Mass Index (BMI) in Healthy North Indian Population.

Methods and Results: One hundred healthy subjects in age group of 20-55 years were enrolled (50 males and 50 females). CRP levels were measured by quantitative immunoturbidimetric method. Mean CRP level was 5.57 (SD ± 3.00, range: 8.0-15.4 mg/L). CRP showed positive correlation with % Body fat (r = 0.509, P < 0.0001) and Ponderal index (r = 0.824, P < 0.0001). The correlation of CRP with % Body fat in both female (r = 0.602, P < 0.0001) and male subgroup (r = 0.543, P < 0.0001) were significant. Similarly it was significantly correlated with Ponderel Index in male (r = 0.543, P < 0.0001) and female subgroup (r = 0.825, P < 0.0001) when analyzed separately.

Conclusion: Our study has shown a positive correlation of CRP with % Body Fat in Ponderel Index, major obesity in both males and females. There our findings suggest a state of low grade systemic inflammation in overweight and obese population.

Observation of Carotid Intima-Media Thickness in Myxoedema an Atherogenic Disease

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Myxoedema is atherogenic via lipid abnormality and/or hypertension and early detection and prompt treatment may prevent atherosclerosis. Patient having symptom suggestive of myxoedema were screened for thyroid dysfunction. Eighty one patients were evaluated and those with TSH level of >5.5 µIU/ml were selected for study. We also included old uncontrolled case of myxoedema who were not taking adequate treatment and had a high TSH. Carotid intima media thickness (CIMT) is a good surrogate marker for atherosclerosis and we have studied 81 patients: 162 common carotid artery by B mode USG.

The CIMT reading were expressed in quintiles. The least 20% belonging to the 1st quintile and the highest 20% being the Vth quintile.

Patient with high TSH value but <50 µIU/ml had 30.95% samples in IV and V quintiles (high atherogenic potential) whereas with TSH 51 to 100 had 63.63% in these 2 quintiles, and of the 14 patient with TSH > 100, 71.4% (10 patients) had CIMT in the IV and V quintiles.

Myxoedema patients with hypertension had 76% in the IV and V quintile compared to the non-hypertensive patient with only 23.32% in this potentially most atherogenic CIMT of IV and V quintile.

Duration of disease based on symptom assessment also resulted in higher CIMT value of patients with duration upto 2 year - IV and V quintile CIMT as 20% with 2-4 years duration it was 61.53% and those patients with more than 4 year duration had 72.22% in these 2 quintiles.

Control of myxedema and reevaluation of CIMT after 6 month was possible in 30 sample and most had no change. Three had increase and 3 decrease in CIMT.

It remains to be proved that treatment will retard CIMT and possible atherosclerosis, but the best strategy would remain to diagnose them early and treat adequately.

Empty Sella Syndrome (ESS) : A Case Series of 18 Symptomatic Cases

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Introduction: Hypofunction of the master gland in the body can have a very subtle clinical presentation.

Aim: To describe clinical and laboratory features of 18 cases of ESS with hypopituitarism.

Methods: A retrospective case record analysis of all patients with ESS treated on out/inpatient basis in the endocrinology division, St. John's Medical College Hospital during the years 2002/2003 was carried out. Data regarding clinical features and relevant lab investigations were collected.

Results: Out of the 18 patients studied, 12 patients were female and the mean age was 40.75 years. Fourteen patients presented with hypothryoid symptoms out of which 10 women also had amenorrhea. Four patients presented with symptoms of generalised weakness due to cortisol deficiency.

Ten patients had history of childbirth during the last eight years with postpartum haemorrhage- Sheehan's syndrome. One patient had a past history of snake bite eight years back with a history suggestive of coagulopathy and bleed and hence Sheehan's.

Investigations revealed secondary hypothyroidism in 14 patients, acth deficiency in eight patients, gonadotropin deficiency in 10 patients and prolactin deficiency in four patients. MRI brain showed ESS in all patients.

Conclusion: It is important to have a high index of suspicion in patients presenting with mild symptoms of hypothyroidism or other single endocrine deficiencies, especially in women (After childbirth), to diagnose hypopituitarism.

*Adjudged Best Papers and got an award of Rs. 1000/- each from Chairman Scientific Committee, Diamond APICON 2005.