calcium malabsorption, pulmonary infection and cytokine production, malnutrition, a sedentary life style, cumulative steroid dose, delayed puberty, and hypogonadism. The objective of this study was to examine the relationship between BMI and bone density of the hip and spine in adult men with CF. We conducted a retrospective chart review of adult men with CF receiving care at an academic medical center. Medical records of 43 men ages 19-60 (32.1±9.8) years were reviewed. 8 men with lung transplant, or receiving chronic glucocorticoid or androgen treatment were excluded. One subject was excluded as his BMI was >3SD above the mean. BMD was measured by dual-energy x-ray absorptiometry at the lumbar spine (LS) and hip. The mean ± SD BMI of the study population was 24.10 ± 5.24 kg/m^2 mean LS BMD was 0.96 ± 0.204 g/cm^2 and mean hip BMD was 0.701 ± 0.382 g/cm^2. Men were divided into three groups: normal BMD, osteopenia, or osteoporosis, based on current guidelines. 8 (24%) men were found to have normal bone density (Z=0.40±0.60), 19 (56%) had osteopenia (Z= -1.57±0.67) and 7 (20%) had osteoporosis (Z= -3.27±0.83). Of these 7, 6 had osteoporosis of the LS only, and one patient had osteoporosis of the hip; 5 were being treated with a bisphosphonate. The three groups of men were similar in age (P=0.93). 25OH-vitamin D levels were 22.6±4.4, 35.6±12.7 and 27.0±13.4 ng/mL, respectively (p=0.03). There was a significant (p=0.023) difference in BMI among these three groups (26.33±4.80 vs 23.25 ± 3.01 vs 20.96±3.64 kg/m^2). BMI was strongly positively correlated with LS BMD (r = 0.54, P<0.001) but not with BMD of the hip (r = 0.11, p=0.55). Moreover, LS BMD was highly predicted by body weight (r = 0.90, P<0.0001) but not significantly by height (r = 0.26, p=0.16). These findings indicate that CF-related bone disease (CF-RBD) affecting the LS is common in adult men, and that body weight is a major determinant of LS BMD in men with CF. Possible mechanisms for this association include signaling pathways related to nutritional status and sex steroids.

Adrenal

ADRENAL - TUMORS

Clinical Course of Adrenal Myelolipoma: A Long-Term Longitudinal Follow-Up Study

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Myelolipoma is the second most common adrenal tumor. Yet, systematic approach to these tumors remains poorly defined. Thus, we aimed to describe natural history of myelolipoma and to identify predictors of tumor growth and need for surgery. We conducted a retrospective longitudinal follow-up study of consecutive patients with myelolipoma. A total of 321 myelolipomas (median size, 2.3 cm [range, 0.5-18.0]) were diagnosed in 305 patients at median age of 63 years (25-87). Most myelolipomas were discovered incidentally (86.6%), whereas others were discovered on imaging done for cancer staging (8.8%) or during workup of mass effect symptoms (4.6%). Median duration of follow-up was 54 months (range, 0.03-267). Compared with myelolipomas <6 cm, tumors ≥6 cm were more likely to be right-sided (59% vs 41%, *P*=0.02), bilateral (21% vs 3%, *P* <.0001), cause mass effects symptoms (32% vs 0%, *P*<.0001), have radiographic hemorrhagic changes (14% vs 1%, *P*<.0001), and undergo adrenalectomy (52% vs 5%, *P*<.0001). There was no difference in sex or age at diagnosis between the groups. Hemorrhagic changes were noted in 9 (3.0%) patients with median tumor size of 7.0 cm (range, 1.8-18.0). Concomitant adrenal hormone excess was diagnosed in 12/126 (9.5%) patients. Primary aldosteronism was noted in 9 patients: due to concomitant ipsilateral (n=3) or contralateral adrenocortical adenoma (n=3), or bilateral idiopathic adrenal hyperplasia (n=3). Autonomous cortisol excess was noted in 3 patients: due to concomitant contralateral (n=2) or ipsilateral adrenocortical adenoma (n=1). Of 162 patients with ≥6 months of imaging follow-up, tumor size change ranged from -10 to 115 mm (median, 0 mm) and tumor growth rate ranged from -5.6 to 140 mm/year (median, 0 mm/year). Tumor growth ≥1.0 cm (n=26, 16.0%) was associated with larger initial tumor size (3.6 vs 2.3 cm, *P*=0.02) and hemorrhagic changes on imaging (12% vs 2%, *P*=0.007), compared with <1 cm size change. Myelolipomas with ≥1.0 cm growth were more likely to undergo adrenalectomy (35% vs 8%, *P*<.0001). Among 37 (12%) patients that underwent adrenalectomy for myelolipoma, surgical indications included: large tumor size/tumor growth (32%), diagnostic surgery (27%), mass effect symptoms (14%), concomitant ipsilateral tumor leading to hormonal excess (11%), acute hemorrhage (8%), and concomitant resection during non-adrenal surgery (8%). In conclusion, most myelolipomas are discovered incidentally, whereas myelolipomas ≥6 are more likely to cause mass effect symptoms, have
radiographic hemorrhagic changes, and more commonly undergo resection. Hormonal excess is rare and is usually attributed to concomitant adrenocortical adenoma or hyperplasia. Tumor growth ≥1.0 cm is associated with larger myelolipoma and presence of hemorrhagic changes. Surgical resection should be considered in symptomatic patients with large tumors, evidence of hemorrhage, or tumor growth.

Diabetes Mellitus and Glucose Metabolism

DIABETES DIAGNOSIS, TREATMENT AND COMPLICATIONS

Poor Diagnostic Concordance Between Fasting Plasma Glucose and Glycosylated Hemoglobin in a Black South African Population

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