average number of antihypertensive medications to 4.0. Urinary albumin: creatinine ratio was unchanged.

Conclusions: Angioplasty with stent placement in older African American hypertensives with critical renal artery stenosis lowers BP to a clinically meaningful degree and reduces urinary albumin excretion with virtually no effect on estimated glomerular filtration rate.

1 any peak systolic velocity > 180 or renal artery/aorta velocity ratios > 3.0

Key Words: Hypertension, Renovascular Hypertension in African Americans, Angioplasty and Stent Placement

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INTENSE ULTRAFILTRATION FOR NORMALIZATION OF BLOOD PRESSURE DURING HOSPITALIZATION IN PATIENTS WITH DIALYSIS REFRACTORY HYPERTENSION

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The prevalence of uncontrolled hypertension [HTN] among chronic hemodialysis [HD] patients is high and ranges from 39 to 80%. Blood pressure [BP] control is volume-dependent in most HD patients but in a subset of patients with dialysis refractory hypertension [DRH], BP remains high post HD. Inadequate ultrafiltration [UF], poor medication compliance, elevated renin, endothelin, and asymmetrical dimethylarginine [ADMA] levels may be contributory to DRH. The effect of hospitalization with intensive UF on BP control remains subjective. We retrospectively reviewed our records and identified 41 patients with DRH who have been hospitalized over the last 4 years [1999-2003]. The effect of hospitalization and intensive UF on BP control is reported.

All patients are African Americans with a mean (±SD) age of 55 ± 11 yr, 65% female [26 of 41] who were hospitalized for volume overload with and without hyperkalemia. All were subjected to daily HD for 2-3 days with intensive UF. The mean pre-hospitalization systolic and diastolic BP’s were 203 ± 24 mmHg and 110 ± 13 mmHg respectively, while the mean out patient interdiabetic weight gain [IDWG] was 5 ± 2 kg (range 2-9 kg). At hospital discharge, the mean weight loss was 8 ± 2 kg (range 2-12 kg). There was a 40% reduction of the mean arterial pressure [MAP] from the pre-hospitalization levels (mean difference 58 mmHg, p < 0.0001) and 29% reduction in number of BP medications (4 ± 1 vs 3 ± 1, p < 0.0001). Regression analysis showed a significant association between dialysis clinic MAP and other factors: IDWG [R = 0.5, p = 0.002]; cocain usage [R = 0.3, p = 0.005]; smoking [R = 0.23, p = 0.02] and alcohol abuse [R = 0.34, p = 0.003]. The normalized BP was only sustained for a brief duration and quickly rose to near pre-hospitalization levels. The MAP at one month post-hospitalization was significantly higher than the level at hospital discharge (122 ± 12 mmHg vs 83 ± 7 mmHg, p = 0.001), but still less than the pre-hospitalization levels (mean difference 19 mmHg, p = 0.001).

Diaryls refractory hypertension appears to be an out patient phenomenon which can be induced by a combination of both modifiable and non-modifiable factors. However, it can be mitigated by lifestyle modification, optimization of BP medications with attention to compliance and adequate UF.

Key Words: Hypertension, Dialysis, Ultrafiltration

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PRIMARY ALDOSTERONISM MAY BE ASSOCIATED WITH ALBUMINURIA AND HYPERFILTRATION

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Both experimental and clinical data suggest that aldosterone may induce cardiac hypertrophy and fibrosis. In a previous study, we reported an increased urinary excretion of albumin (UAE) and β2microglobulin (Uβ2m) in patients with aldosterone producing adenoma (APA) when compared to essential hypertension (EH).

Echocardiography, glomerular filtration rate and effective renal plasma flow (GRF and ERPF, clearances of 99mTc-DTPA and 131I-hippuran) were measured in 54 patients with either APA or EH, matched for the level and duration of hypertension, age, body mass index, sodium and protein intake (as assessed by 24-hour urinary excretion of sodium and urea). Cardiac and renal studies were repeated 6 months following surgery in APA, and after 6 months of antihypertensive therapy in EH.

At baseline, APA and EH patients were similar with respect to mean arterial pressure (MAP, 123 ± 3 vs 123 ± 2 mmHg) and left ventricular mass index (LVMI, 149 ± 8 vs 139 ± 5 g/m²) as well as GRF and ERPF [100 ± 5 vs 106 ± 1 and 433 ± 19 vs 445 ± 18 ml/min/1.73m²]. UAE and Uβ2m were higher in APA (57 ± 17 vs 22 ± 9 μg/min and 920 ± 215 vs 170 ± 19 μg/24h).

LVMI and UAE were directly correlated with systolic arterial pressure.

Following adrenalectomy, blood pressure decreased to 147 ± 1/87 ± 2 mmHg, LVM (–31 ± 5 g/m²) as well as UAE (–40 ± 13 μg/min) and Uβ2m (–498 ± 194 μg/24h) decreased. GRF and ERPF fell to 86 ± 3 and 381 ± 16 ml/min/1.73m² respectively whereas renal resistance and filtration fraction remained unchanged. For a similar decrease in blood pressure in EH, no change was observed in GRF and ERPF.

In addition, renal studies were performed in 17 APA before and after chronic administration of spironolactone. The decrease in blood pressure was associated with a decrease in GRF and ERPF similar to that observed following adrenalectomy.

These data suggest that primary aldosteronism is associated with a state of hyperfiltration. Albuminuria and hyperfiltration may play a role in the development of renal lesions.

Key Words: Primary Aldosteronism, Glomerular Hyperfiltration, Renal Organ Damage

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CARDIOVASCULAR STRUCTURE AND RENAL FUNCTION IN A GENERAL POPULATION IN NORTHERN ITALY: THE VOBARNO STUDY

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Background: Renal dysfunction is associated with an increased risk of cardiovascular events in studies examining hypertensive patients and in general population studies. In hypertensives a mild derangement of renal function has been found associated with an increased left ventricular mass and carotid intima media thickness.

The aim of our study is to report the relationships between indexes of renal function and cardiovascular changes in a general population sample living in a small town in Northern Italy.

Design and methods: In 287 subjects participating in our ongoing population study (Vobarino study) we measured left ventricular mass index (LVMI), relative wall thickness (RWT), mean-maximum intima-media thickness (meanmaxIMT) and common carotid IMT (CCIMT) by ultrasound (Philips Sonos 5500). All subjects underwent standard laboratory examinations and both clinic and 24 hours systolic (SBP) and diastolic (DBP) blood pressure measurement (Spacecals 90207).

Results: In the whole population (mean age was 43 ± 3.9 years, mean BMI 25.3 ± 3.2) serum creatinine was significantly correlated to 24 hours SBP (r=0.177, p<0.01), 24 hours DBP (r=0.143, p<0.05), left ventricular mass index (r=0.179, p<0.01), RWT (r=0.224, p<0.001), meanmaxIMT (r=0.11, p<0.05).

Conclusions: In a general population serum creatinine is significantly related to left ventricular mass and to concentric geometry. A correlation between renal function and carotid artery wall thickness is also observed. This findings might in part explain the increased cardiovascular risk observed in patients with even mild increases of serum creatinine.

Key Words: Kidney and Hypertension, Cardiac Structure and Function,