Calciotropic hormones(1,25 dihydroxy vitamin d and parathyroid hormones)and plasma renin activity in essential hypertension

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Abnormalities of Calcium metabolism have been described inpatients with essential hypertension. The role of calcium in the regulationof blood pressure is receiving increased attentionThe aim of this work is to study calcium homeostasis in essentialhypertensive patients to shed light on the mechanisms played bycalciotropic hormones in the pathogenesis of essential hypertension.Thirty essential hypertensive patients as well as ten well matched healthyvolunteers as control had been selected for this study.Diagnosis of secondary hypertension was adequately excluded bymeticulous history and clinical examination and by the finding of normalurine analysis, serum creatinine and serum electrolytes, and by radiologicstudies, and electrocardiography (BCG), when clinically indicated.Patients taking contraceptive pills, or injections, glucocorticoids,phosphate binding antacids, sex hormones or those on weight reducingdiets, or pregnant were excluded from the study.Patients and controls were subjected to full medical history andexamination and the following investigations were done:1-·Serum creatinine.2-Serum sodium and potassium3-serum calcium, 1.25 (OH)2D and Parathyroid hormone (PTH).4-Plasma renin activity (PRA).5-24 hours urinary calcium.The results of this work showed:I-No significant difference between the mean serum calcium values inthe hypertensive group and the control group.2-Significant elevation of the mean value of 24 hours urinary calcium inthe hypertensive group when compared to the control group, withhypercalciuria in 70% of patients.3-Significant elevation of the mean value of serum 1,25 (OH)2D in thehypertensive group when compared to the control group with elevatedserum 1,25(OH)2Din 40% of patients.4-Significant elevation of the mean value of serum PTH in thehypertensive group when compared to the control group, withelevated serum PTH in 60% of patients.5-No correlation was observed among serum PTH, serum 1,25 (OH)2Dand urinary calcium in the hypertenisve group.from this study, we come to the conclusion that:_Hypercalciuria is a major derangement of calcium metabolism inpatients with essential hypertension. This may be due to a defectiverenal tubular calcium transport.-The elevated PTH and 1,25 (OH)2D in essential hypertension might be acompensatory response in trial to restore calcium balance to normal.-These calciotropic hormones directly facilitate calcium transport fromthe extracellular space in the cell resulting in intracellular calciumaccumulation and increase in cytosolic free ca’” concentration foundin patients with essential

hypertension. The cytosolic free calciumconcentration is crucial for the vascular contractile activity and hence,elevation in blood pressure.Further research is recommended to study the association amongsystemic markers of calcium metabolism, cellular calcium metabolismand arterial blood pressure regulation.