11?-hydroxysteroid dehydrogenase type-2 and type-1 (11?-HSD2 and 11?-HSD1) and 5?-reductase activities in the pathogenia of essential hypertension

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Cortisol availability is modulated by several enzymes: 11?-HSD2, which transforms cortisol (F) to cortisone (E) and 11?-HSD1 which predominantly converts inactive E to active F. Additionally, the A-ring reductases (5?- and 5?-reductase) inactivate cortisol (together with 3?-HSD) to tetrahydrometabolites: 5?THF, 5?THF, and THE. The aim was to assess 11?-HSD2, 11?-HSD1, and 5?-reductase activity in hypertensive patients. Free urinary F, E, THF, and THE were measured by HPLC-MS/MS in 102 essential hypertensive patients and 18 normotensive controls. 11?-HSD2 enzyme activity was estimated by the F/E ratio, the activity of 11?-HSD1 in compare to 11?-HSD2 was inferred by the (5?THF + 5?THF)/THE ratio and 5?-reductase activity assessed using the

E/THE ratio. Activity was considered altered when respective ratios exceeded the maximum value observed in the normotensive controls. A 15.7% of patients presented high F/E ratio suggesting a deficit of 11?-HSD2 activity. Of the remaining 86 hypertensi