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Renal function in acromegaly

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Introduction

Acromegaly is a rare disease resulting from growth hormone (GH) excess mostly due to pituitary adenomas. It is associated with changes of most organ systems and multiple comorbidities. The impact of GH and IGF-I excess on renal function in acromegaly is unclear.

Methods

We investigated 67 acromegalic patients from our outpatient clinic (32 female, 35 male, mean age 61 ±13.5 years, women 10 years older than men). The renal function was assessed by blood and urine tests, ultrasound and blood-gas analysis.

Results

38 patients were considered biochemically controlled according to latest recommendations on criteria for cure of acromegaly (IGF-I in age- and gender-specific reference range, random basal GH < 1 ng/ml). 12 patients were partially controlled (IGF-I up to 1.3 times elevated), 17 biochemically active. 59.7% of the patients have hypertension (68.4% of the controlled, 75% of the partially and 29.4% of the uncontrolled patients), 22.4% of the patients presented with diabetes mellitus, 10.4% have both. The distribution between the sexes was balanced. According to the Cystatin C formula (GFR(CysC) = 77.24 x Cystatin C-1,2623) 39 patients (58.3%) presented with reduced glomerular filtration rate (GFR < 90 ml/min). 49.3% of the patients have a chronic kidney disease stage 2 (GFR 60-89 ml/min), 9% stage 3 (GFR 30-59 ml/min). Despite their higher age the median GFR of the female patients is 2.9 ml/min higher (83.5 vs. 86.4 ml/min). The median GFR of hypertonic patients is 21.6 ml/min lower than in patients without hypertension (80.8 vs. 102.4 ml/min). There is no significant difference between the GFR of controlled, partially and not controlled patients in our patients (81.9 vs. 89.5 vs. 84.7 ml/min)

Conclusion

We found a reduced renal function (GFR < 90 ml/min) in 58% of acromegalic patients. Age, hypertension and diabetes are important confounders to consider when comparing groups: Despite younger age and less frequent hypertension, the Cystatin C estimated GFR of patients with active acromegaly does not differ from controlled acromegaly.

	controlled	partially controlled	active
median age ± SD [years]	64.5 ±11.8	57.0 ± 14.6	53.0 ± 14.7
% hypertension	68.4	75.0	29.4
% diabetes	21.1	25.0	23.5

Tab. 1: Differences between controlled, partially controlled and active patients with acromegaly

	GFR > 90 ml/min	GFR 60-89 ml/min	GFR < 60 ml/min
median age ± SD [years]	52.5±12.6	66.0±10.2	70.5±6.9
% hypertension	39.3	69.7	100.0
% diabetes	21.4	24.2	16.7

Tab. 2: Differences between patients grouped by GFR

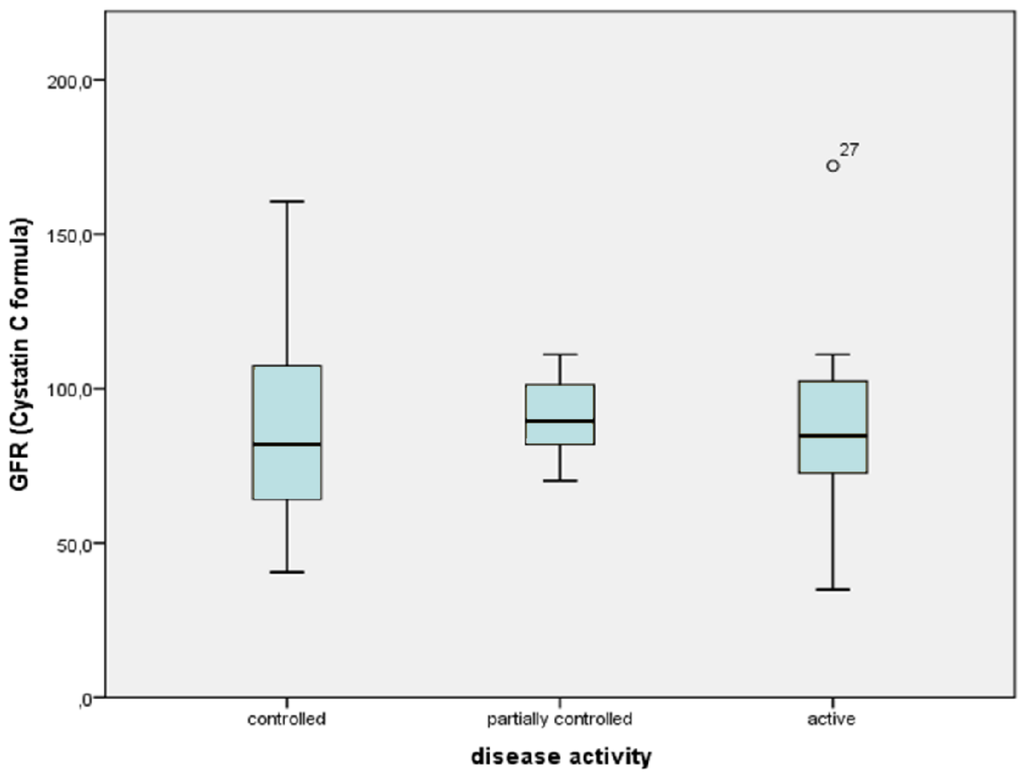

Fig. 1: Disease activity of acromegaly seems to have no effect on GFR as determined by Cystatin C formula

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