COMPARISON OF FEBUXOSTAT AND ALLOPURINOL IN PROGRESSION OF CHRONIC KIDNEY DISEASE (CKD)

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INTRODUCTION

Hyperuricemia is associated with the onset of chronic kidney disease (CKD) and renal disease progression. It has been demonstrated that treatment with allopurinol prevents progressive declines in glomerular filtration rate (GFR) in patients with CKD. However, few data are available regarding to the mechanisms involved in this benefit.

The aim of this study was to compare the effect of two xanthine oxidase enzyme inhibitors (febuxostat and allopurinol) in renal disease progression in a group of CKD patients.

METHODS

Fifty patients followed up in our renal clinic with asymptomatic hyperuricemia were treated with allopurinol 100 mg/d and compared with 39 patients treated with febuxostat 80 mg/d with maintained hyperuricemia >7 mg/dL despite adjusted doses of allopurinol. We evaluated the change in uric acid (UA) levels and the decline of GFR the year before starting the treatment and after six months. We also collected other variables that may modify the progression of CKD such as blood pressure, albuminuria and inflammatory parameters.

RESULTS

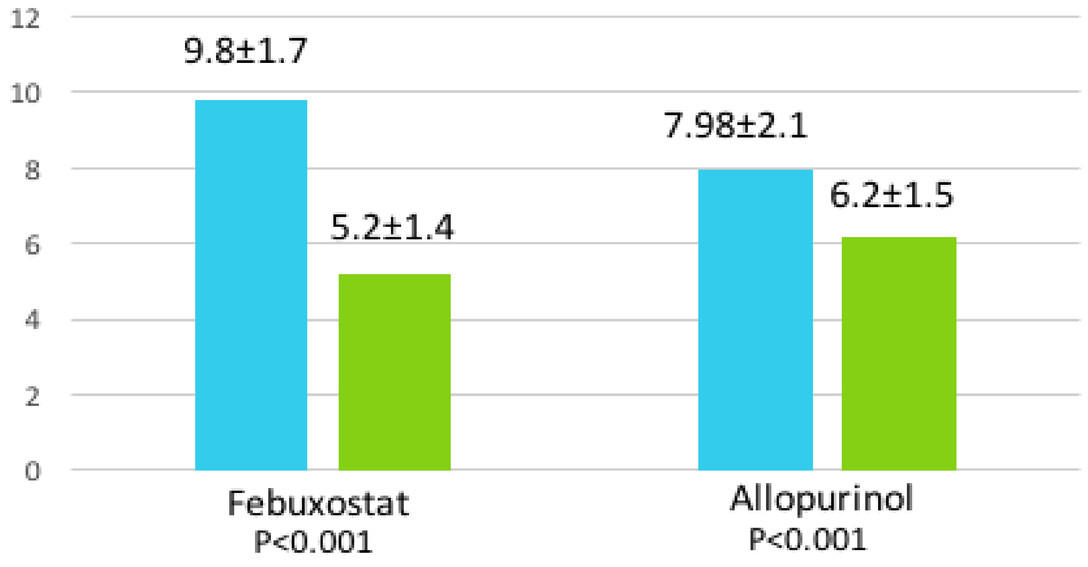
Febuxostat treatment reduced UA levels from 9.8±1.7 to 5.2±1.4 mg/d (p<0.001). During the year before starting febuxostat GFR decreased -0.58±0.87 ml/min/month, and after 6 months of treatment GFR improved +0,7±2 ml/min/month (p=0.001). There were no significant differences in blood pressure, albuminuria or inflammatory parameters.

Compared with the group treated with febuxostat, allopurinol reduced UA levels from 7.98±2.1 to 6.2±1.5 mg/dl (p<0.001 vs febuxostat group). Despite a minor reduction of UA levels, the GFR improved at 6 months: +0,19±1,3 ml/min/month, with no significant differences between both groups.

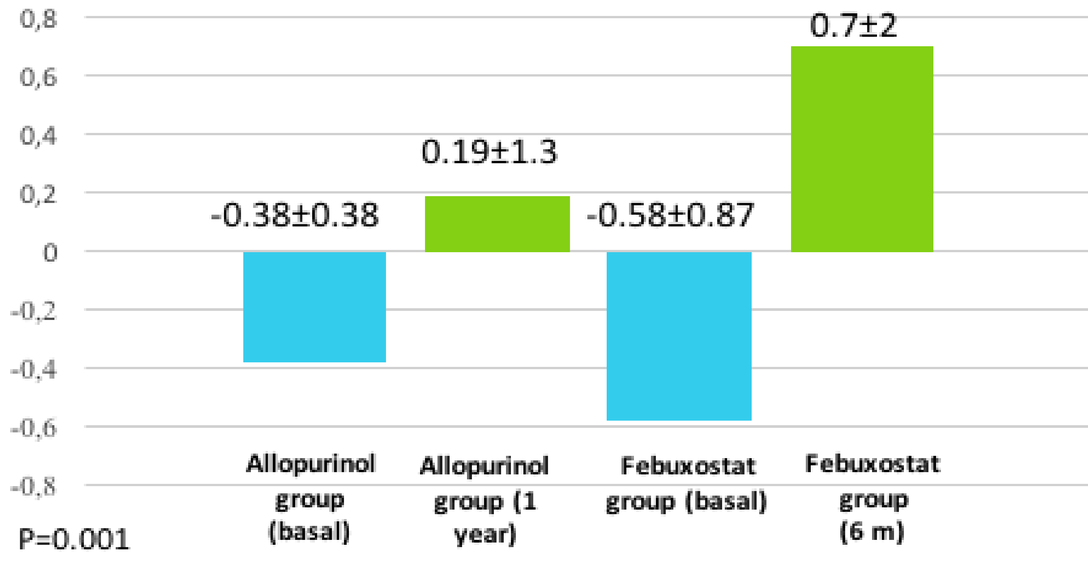
BASAL CHARACTERISTICS

	grup	N	Mean	Std. Deviation
SAP (mmHg)	febuxostat	39	140,8684	23,64623
	allopurinol	50	143,2800	20,17883
DAP (mmHg)	febuxostat	39	74,5000	11,81787
	allopurinol	50	77,1800	9,99733
Age (years)	febuxostat	39	66,5789	16,39212
	allopurinol	50	72,2000	8,17163
Creatinine (mg/dL)	febuxostat	39	1,9315	,56201
	allopurinol	50	1,7549	,44780
Uric acid (mg/dL)	febuxostat	39	9,8103	1,73187
	allopurinol	50	8,0098	2,10791
Microalbuminuria (mg/24 h)	febuxostat	39	211,0513	531,00951
	allopurinol	50	364,7118	787,94647
Albumin (g/dL)	febuxostat	39	4,2995	,38996
	allopurinol	50	4,3460	,31829
Hemoglobin (g/dL)	febuxostat	39	12,9256	2,00679
	allopurinol	50	13,6922	1,91613
Hematocrit (%)	febuxostat	39	39,0333	5,87234
	allopurinol	50	40,8216	5,47315

URIC ACID LOWERING (mg/dL)



eFGR CHANGES (ml/min/month/1,73 m²)



CONCLUSIONS

Febuxostat treatment decreases UA levels below 6 mg/dl in CKD patients and that is more effective than allopurinol. Uric acid lowering may indeed slow the progression of kidney disease similar to allopurinol-treated group, although follow up time was short. This data further support for the beneficial role of lowering uric acid levels in renal protection, regardless of the xanthine oxidase inhibitor used.

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