

# Beneficial effects of replacement therapy with modified-release hydrocortisone in patients with adrenal insufficiency

EP-53



<sup>1</sup>Valentina Morelli, <sup>2</sup>Erika Messina, <sup>3</sup>Marco Mendola, <sup>1</sup>Elisa Cairoli, <sup>3</sup>Bruno Ambrosi, <sup>2</sup>Salvatore Cannavò, <sup>1</sup>Iacopo Chiodini, <sup>1</sup>Anna Spada

<sup>1</sup>Unit of Endocrinology and Metabolic Diseases, Fondazione Policlinico IRCCS, University of Milan, Milan, <sup>2</sup>Unit of Endocrinology AOU Policlinico G. Martino, University of Messina, Messina, <sup>3</sup> Endocrinology and Diabetology Unit, IRCCS Policlinico San Donato Institute, San Donato Milanese, Milan, Italy.

## INTRODUCTION

The classical replacement therapy for hypoadrenalism risks to expose patients to non-physiologic glucocorticoids levels with negative metabolic consequences. A previous study demonstrated that, as compared to the classical treatment, a modified-release hydrocortisone (MRH)\* improves weight, blood pressure, glycaemic control and quality of life (QoL) in a 3-months follow-up period [1]. Few data are available on the long term persistence of these benefits. A recent study demonstrated that MRH decreases body mass index (BMI) and HbA1c levels and may stabilize QoL in a longer follow-up period (median 202 days) as compared with conventional treatment [2].

## DESIGN/METHODS

In three Italian Endocrine Units, 17 patients (age 50.8±10.7, 9M/8F), 10 with Addison (AD) and 7 with central hypocortisolism (CH) were enrolled. Twelve patients were treated with cortisone acetate (30.2±10.9 mg/die), 5 patients with hydrocortisone (25±5 mg/die). Both groups had an inadequate control of the disease (80% of patients reported fatigue). In all patients, after baseline evaluations, the classical therapy was replaced with MRH (mean dose 20.3±1.2 mg). At 1-3-6-12 months after the therapy modification (mean follow-up: 8.8±4.2 months) we evaluated the parameters of adrenal function, BMI, blood pressure (BP), HbA1c levels and symptoms of over or under-treatment.

## RESULTS

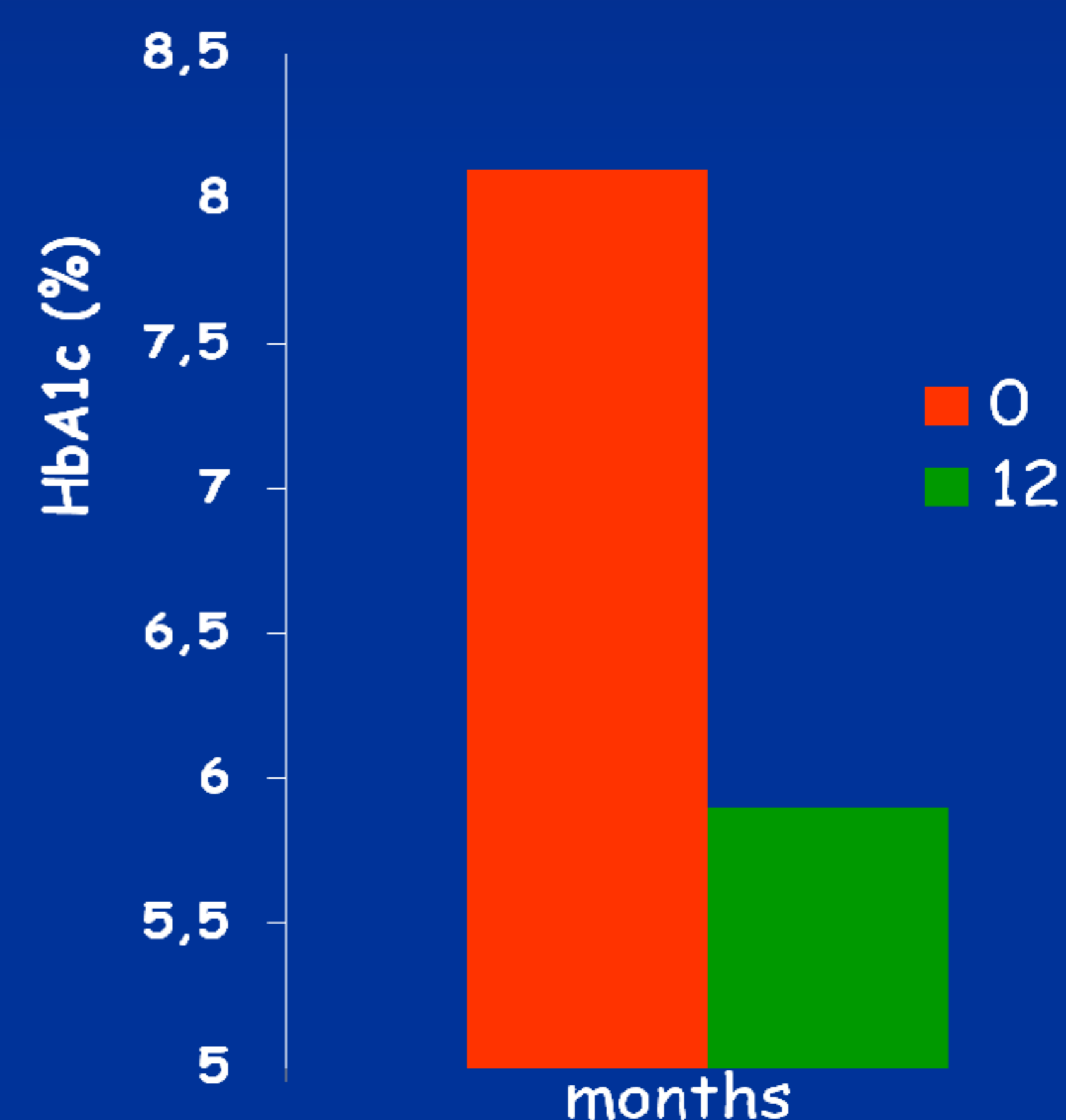
MRH determined higher morning cortisol levels than the classical therapy but comparable urinary free cortisol levels (UFC) confirmed at each evaluation. In Addisonian patients ACTH levels remained stable over time. Paired sample T-test showed that after 1-3 and 6-months of follow-up the metabolic parameters did not change. 10 patients completed the 12-months follow-up (7 with AD and 3 with CH). Among these patients, 3 were affected with arterial hypertension and 2 with type 2 diabetes mellitus (T2DM), 8 patients were previously treated with cortisone acetate, 2 patients with hydrocortisone. In these patients we observed a reduction of BMI and systolic BP (regardless of the presence of arterial hypertension). The 60% of patients showed an improvement of fatigue after 6 months that persisted at 12 months.

No patient reported symptoms of over-treatment.

**Clinical and biochemical parameters of the 10 patients who completed the 12-months follow-up period**

	Baseline	6 months	12 months	P*
Serum Cortisol $\mu\text{g/dl}$	13.2±3.5	18.8±6.3	20.7±6.5	0.01
UFC $\mu\text{g/24h}$	24.1±9.5	27.9±13	29.1±14	ns
ACTH levels in Addisonian patients (pg/mL)	175.8±215	215±188	150.6±157	ns
BMI (kg/m <sup>2</sup> )	29.2±5.8	28.6±5.3	28.3±5.2	0.03
Systolic BP (mmHg)	126±18	118±9.8	115±18	0.03
Diastolic BP (mmHg)	73±10.8	70.5±6.9	71.5±13	ns
HbA1c (%)	6.3±1	5.9±0.8	5.8±0.6	ns
Fatigue (%)	80%	20%	20%	0.02

\*12 months vs baseline



HbA1c decreased in the 2 diabetic patients (1AD:1CH). Therapy modification in these patients: Patient with AD hydrocortisone 30 mg → MRH 25 mg; Patient with CH cortisone acetate 25 mg → MRH 20 mg

## CONCLUSIONS

In patients with hypoadrenalism, a 12-months treatment with MRH seems to improve some metabolic parameters and to reduce fatigue.

## REFERENCES

- [1] Johannsson G et al, *J Clin Endocrinol Metab* (2012)
- [2] Quinkler M et al, *Eur J Endocrinol* (2015)

