

# EFFECTS OF NEBIVOLOL AND IRBESARTAN ON AMBULATORY BLOOD PRESSURE IN HEMODIALYSIS PATIENTS WITH INTRADIALYTIC HYPERTENSION: PRELIMINARY RESULTS FROM A RANDOMIZED CROSS-OVER STUDY

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## INTRODUCTION AND OBJECTIVES

Blood pressure (BP) increase during or immediately after hemodialysis is an abnormal hemodynamic response to ultrafiltration and occurs in 5-20% of patients [1,2]. Intradialytic hypertension is associated with adverse clinical outcomes and is often poorly diagnosed and controlled [3,4]. This study aimed to evaluate the effects of nebivolol and irbesartan in 24hour ambulatory BP in hemodialysis patients with intradialytic hypertension.

## METHODS

This is a randomized cross-over pilot study in 31 hemodialysis patients (age: 61.3±11.6 years, male: 67.7%) with no clinical signs of volume overload. Intradialytic hypertension was defined as mean intradialytic rise ≥10 mmHg in systolic BP (SBP) over 6 consecutive hemodialysis sessions. After baseline evaluation, patients were randomly assigned to a single dose 1 hour before hemodialysis (n=16) or weekly intake (n=15) of nebivolol 5 mg and subsequently irbesartan 150mg, or vice versa. A two-week wash-out period took place before the initiation of the second drug. All patients underwent 24hour ambulatory BP monitoring with the Mobil-O-Graph device (IEM, Stolberg, Germany) over the relevant midweek session and the following 20hour interdialytic period.

## RESULTS

In total, 15 (48.4%) patients received nebivolol first and 16 (51.6%) received irbesartan first. Patients receiving a single dose of either nebivolol or irbesartan had lower post-dialysis SBP and diastolic BP (DBP) [Baseline: 161.6±17.5/95.4±12.0; Nebivolol: 146.3±21.7 (p=0.004), 86.1±12.2 (p=0.001); Irbesartan: 146.4±32.0 (p=0.015), 86.6±19.6 (p=0.059) mmHg; respectively], non-significantly lower 24-hour SBP and lower DBP [Baseline: 148.8±19.6/86.9±11.8; nebivolol: 142.8±20.4 (p=0.083), 83.7±12.3 (p=0.038); irbesartan: 144.1±22.8 (p=0.144), 84.1±13.9 (p=0.174) mmHg]. Patients on weekly administration of either nebivolol or irbesartan had significantly lower post-dialysis SBP and DBP (Baseline: 164.1±12.5/100.0±10.7; nebivolol: 142.7±16.0 (p<0.001), 89.5±12.5 (p=0.004); irbesartan: 144.9±24.3 (p=0.006), 88.2±13.6 (p=0.006) mmHg), significantly lower 24-hour SBP and DBP (Baseline: 146.7±11.2/92.7±9.5; nebivolol: 139.2±11.2 (p=0.003), 85.5±8.0 (p=0.003); irbesartan: 142.0±16.6 (p=0.332), 86.3±10.4 (p=0.042) mmHg; accordingly) and significantly lower daytime and nighttime ambulatory SBP and DBP.

## BASELINE CHARACTERISTICS

N	31	N	31
Age (years)	61.3±11.62	Creatinine (mg/dL)	8.0±1.8
Women (n, %)	10 (32.3%)	URR (%)	69.3±5.9
Weight (kg)	68.0±14.66	Calcium (mg/dl)	8.8±0.7
Height (cm)	167.3±9.2	Phosphorus (mg/dl)	5.3±1.5
BMI (kg/m <sup>2</sup> )	23.4±3.8	PTH (pg/ml)	287±177
Vintage of HD (months)	35.7±37.9	Hgb (g/dL)	11.1±1.1
Diabetes (n, %)	7 (22.6%)	RAAS blockers (n, %)	0 (0%)
Hypertension (n, %)	26 (83.9%)	Aldosterone blockers (n, %)	0 (0%)
Dyslipidemia (n, %)	6 (19.4%)	CCBs (n, %)	27 (87.1%)
Peripheral vascular disease(n, %)	1 (3.2%)	Loop Diuretics (n, %)	16 (51.6%)
Coronary heart disease (n, %)	3 (9.7%)	B-blockers (n, %)	0 (0%)
Heart failure (n, %)	3 (9.7%)	Central Active (n, %)	13 (41.9%)
Stroke (n, %)	2 (6.5%)	EPO (n, %)	26 (83.9%)
Smoking (n, %)	7 (22.6%)	Statins (n, %)	12 (38.7%)
Urea (mg/dL)	141±43		

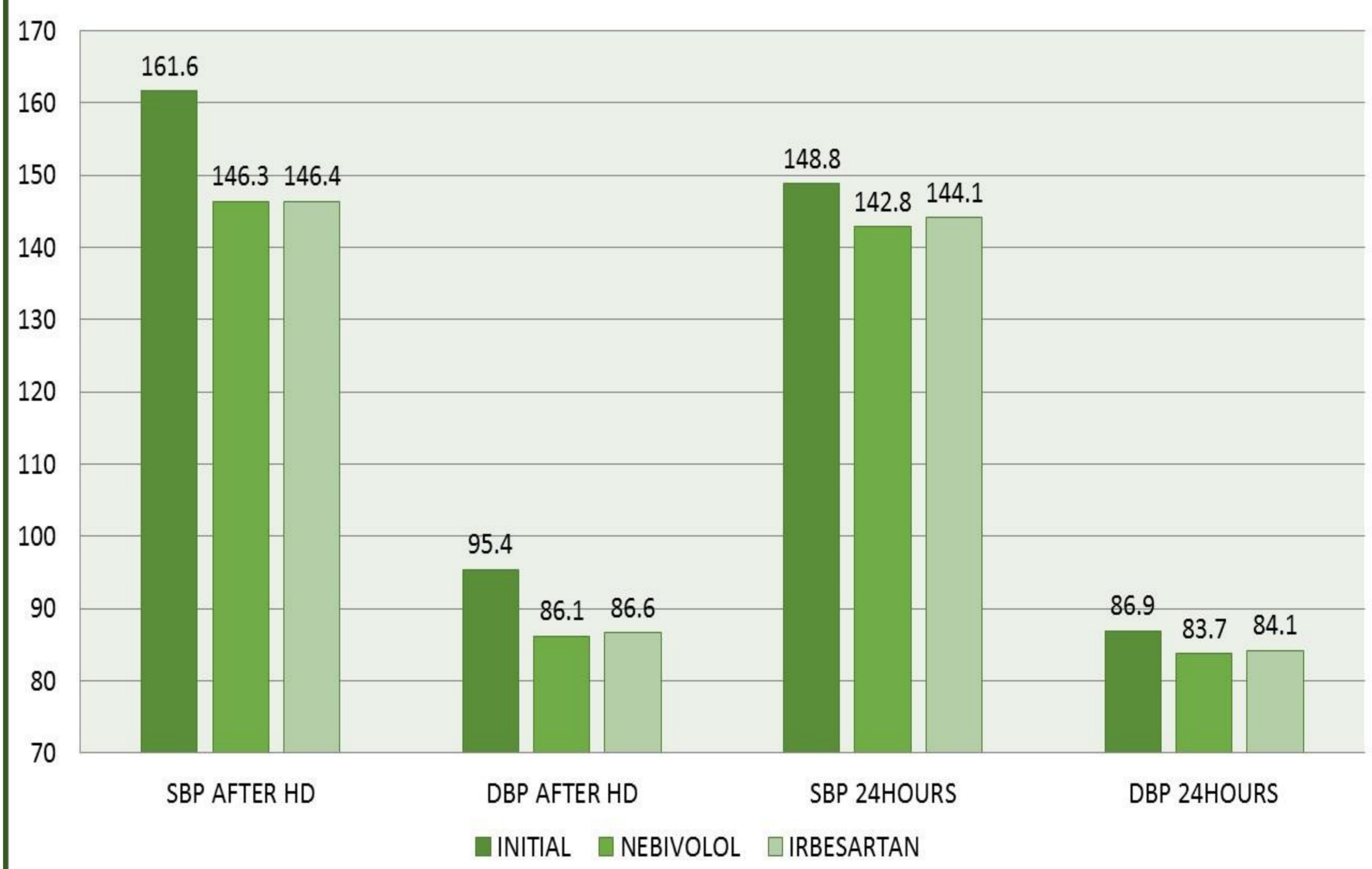
## CONCLUSIONS

This pilot study indicates that both nebivolol and irbesartan reduce post-dialysis and 24-hour BP in patients with intradialytic hypertension. Nebivolol seemed numerically more potent than irbesartan; permanent administration of these agents may be more effective than pre-dialysis dosing.

## REFERENCES

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## SINGLE ADMINISTRATION



## WEEKLY ADMINISTRATION

