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HEMODYNAMIC DIFFERENCES AMONG AT1 RECEPTOR BLOCKERS IN ARTERIAL HYPERTENSION: RESULTS WITH VALSARTAN AND TELMISARTAN

The assessment of hemodynamic parameters (Left Ventricular Function (LVF) and Vascular Parameters (VP)) enables us to evaluate different effects of drugs interventions on these parameters.

**Aim:** To determine the hemodynamic effects of AT1 receptor blocker: Telmisartan (Te) vs Valsartan (Va) on LVF and VP.

**Methods:** 40 hypertensives subjects (BP ≥ 140/90 mm Hg) enter in the study (Male n=16, Female n=24): Group Te (40 mg/d) n=22, 55.3±9.6 yrs.; Group Va (80 mg/d) n=18, 52.9±13.2 yrs. BP measurements, LVF and VP recordings were obtained with a DynaPulse 200M (PulseMetric), at basal and 4 weeks of treatment. Paired T-test was performed, with statistical significance α=0.05.

**Results:** After the treatment there was a reduction in both groups; no effects on Pulse. LVF: Group Ti show improvement in After Load (AL) (1.8±0.4 to 1.5±0.4 mmHg/ml, p=0.00), dP/dTmax (138±364 to 1112±251 mmHg/s, p=0.00), dP/dt DP 40 (34.5±9.1 to 27.8±6.2 s-1, p=0.00), and Stroke Work (SW) (89.9±20.8 to 68.1±14.1 J/min, p=0.00) and Cardiac work (73.5±12.7 to 59.3±9.1 J/min, p=0.00). Group Va show improvement in dP/dTmax (1284±282 to 1105±257, p=0.00), dP/dt DP 40 (32±7 to 27±6, p=0.00), and SW (74.9±25.5 to 60.2±19.7, p=0.004) and Cardiac work (71.4±21.5 to 58.3±17.7, p=0.001); no effect on AL. No change on LSVS or CO was observed in both groups. VP: Group Ti show reduction in Systemic Vascular Resistance (SVR) (1826±275 to 1478±252 di-nem.s.cm-5; p=0.00), improvement in SV Compliance (1.065±0.28 to 1.415±0.4 ml/mmHg, p=0.00). Group Am tended to show a reduction in SVR (1756±349 to 1615±460 di-nem.s.cm-5, p=0.06) with no statistical significance; Compliance (1.088±0.36 to 1.420±0.42 ml/mmHg, p=0.00) was improved.

**Conclusion:** Despite that both drugs show reduction in BP parameters, there are hemodynamic differences: Ti improve After Load and Contractility index, reducing SVR and increasing Vascular Compliance, whereas Am only show improvements in contractility index, and increasing Vascular compliance, without significant effect in SVR.

Key Words: Telmisartan, Amiloride, Arterial Waveform Analysis

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AT1 RECEPTOR BLOCKER AND DIURETICS IN THE TREATMENT OF ARTERIAL HYPERTENSION: HEMODYNAMIC DIFFERENCES

BP recordings stand for the basic approach in the assessment of clinical course of Hypertension. The assessment of Left Ventricular Myocardial Function (LVMF) and Vascular Parameters (VP) enables us to study these characteristics are modified with drugs interventions.

**Aim:** To determine the effects of an AT1 receptor blocker: Telmisartan (TI), and a diuretic: Amiloride (Am) in LVMF and VP.

**Methods:** 33 hypertensives subjects (BP ≥ 140/90 mm Hg) enter in the study (Male n=13, Female n=20), age 54.3±12.7 yrs.; Group TI (40 mg/d) n=19, Group Am (5 mg/d) n=14. BP measurements, LVMF and VP recordings were obtained with a DynaPulse 200M (PulseMetric), at basal and 4 weeks of treatment. Paired T-test was performed, with statistical significance α=0.05.

**Results:** After the treatment there was a reduction in both groups; no effects on Pulse. LVMF: Group TI show improvement in After Load (AL) (1.8±0.3 to 1.5±0.4 mmHg/ml, p=0.00), dP/dTmax (149±345 to 1128±247 mmHg/s, p=0.00), dP/dt DP 40 (36.2±8.6 to 28.2±6.2 s-1, p=0.00); and Stroke Work (SW) (89.6±19.5 to 69.0±14.6 J/min, p=0.00) and Cardiac work (73.8±13.1 to 59.1±8.9 J/min, p=0.00). Group Am show improvement in dP/dTmax (1358±223 to 1110±246 mmHg/s, p=0.00), dP/dt DP 40 (33.9±5.6 to 27.7±6.1 s-1, p=0.00), and SW (72.6±16.3 to 63.3±16.3 J/min, p=0.00) and Cardiac work (70.0±14.6 to 60.6±17.3 J/min, p=0.00); no effect on AL. No change on LSVS or CO was observed in both groups. VP: Group TI show reduction in Systemic Vascular Resistance (SVR) (1826±275 to 1478±252 di-nem.s.cm-5, p=0.00); improvement in SV Compliance (1.065±0.28 to 1.415±0.4 ml/mmHg, p=0.00). Group Am tended to show a reduction in SVR (1756±349 to 1615±460 di-nem.s.cm-5, p=0.06) with no statistical significance; Compliance (1.088±0.36 to 1.420±0.42 ml/mmHg, p=0.00) was improved.

**Conclusion:** Despite that both drugs show reduction in BP parameters, there are hemodynamic differences: TI improve After Load and Contractility index, reducing SVR and increasing Vascular Compliance, whereas Am only show improvements in contractility index, and increasing Vascular compliance, without significant effect in SVR.

Key Words: Telmisartan, Amiloride, Arterial Waveform Analysis

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LEFT VENTRICULAR MYOCARDIAL FUNCTION AND VASCULAR PARAMETERS IN HYPERTENSIVE PATIENTS TREATED WITH VALSARTAN

The assessment of Left Ventricular Myocardial Function (LVMF) and Vascular Parameters (VP) enables us to study how these characteristics are modified with drugs interventions.

**Aim:** To evaluate the efficacy of Valsartan in reducing BP and determine its effects in LVMF and VP.

**Methods:** 18 hypertensives subjects (BP ≥ 140/90 mm Hg) enter in the study (Male n=9, Female n=9), age 52.9±13.2 yrs. BP measurements, LVMF and VP recordings were obtained with a DynaPulse 200M (PulseMetric), at basal and 4 weeks of treatment with Valsartan 80mg. Paired T-test was performed, with statistical significance α=0.05.

**Results:** After the treatment there was a reduction in SBP (151.5±15.6 to 129.7±14.8, p=0.000), DBP (84.3±12.7 to 76.4±12.5, p=0.001) and MBP (104.5±11.5 to 88.5±7.1, p=0.000); HR was unchanged. LVMF show improvement in (1) dP/dTmax (1284±282 to 1105±257, p=0.000), dP/dt DP 40 (32±7 to 27±6, p=0.000), (2) Stroke Work (74.9±25.5 to 60.2±19.7, p=0.004) and Cardiac work (71.4±21.5 to 58.3±17.7, p=0.001) were reduced. No significant change was observed in After load, LVET, LSVS and CO. VP show reduction in Systemic Vascular Resistance (SVR) (1823±840 to 1553±482, p=0.045) with nearly statistical significance; SV Compliance (1.127±0.429 to 1.355±0.520, p=0.02) was increased.

**Conclusion:** Valsartan was effective to reduce BP parameters, improving contractility index, reducing SVR and increasing Vascular compliance.

Key Words: Arterial Waveform Analysis, Valsartan, Arterial Compliance