# EFFECTS ON VASCULAR STRUCTURE AND FUNCTION OF SINGLE AT1R BLOCKADE OR ITS COMBINATION WITH CCB, DIURETICS OR THEIR TRIPLE ASSOCIATION.

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## BACKGROUND

The antihypertensive efficacy of Valsartan (VAL) is largely known in monotherapy and combination with CCB and diuretics (D) but there is scarce evidence of its vascular effects in subjects younger than 60 y.o.

Otherwise, there is a rationale supporting using combinations in high CV risk or patients with higher BP but vascular findings are not considered still as a reason.

## OBJECTIVE

To analyze a population of subjects <60 y.o treated with different regimens of antihypertensive drugs and the vascular patterns in each group.

## METHODS

From the database of our Non Invasive Vascular lab with 7865 p. first evaluation, we analyzed in a "real life" case control, retrospective study 700 control hypertensives, 57 on VAL monotherapy, 28 on VAL+D, 64 on VAL+CCB and 21 on triple combination (VAL+CCB+D).

Data of CV RF and Vascular parameters (IMT, Plaques, PWV, Endothelial Function (EF) and Arterial Sttifness (AS) like CAP and Aix) are reported.

**BASELINE CHARACTERISITCS BY GROUP**

| PARAMETER | GENERAL (n 7015) Group C | VALS ( N 57) Group 1 | VALS HCT(N 28) Group 2 | VAL AML (N 64) Group 3 | VALS AML HCT (N 21) Group 4 |
|---|---|---|---|---|---|
| AGE | 50,9 ± 12 | 48,3 ± 11 | 53 ± 5* | 53,7 ± 14* | 56,7 ± 11* |
| SEX M (%) | 4634 (65) | 38 (67) | 19 (68) | 43 (67) | 17 (81) |
| BMI (Kg/m2) | 27,4 ± 4,6 | 27,2 ± 3,9 | 29,1 ± 5,4* | 29,1 ± 6,3* | 28,7 ± 5,5* |
| HTN (%) | 3987 (56,8)# | 52 (91,2) | 26 (92,8) | 59 (92,2) | 19 (90,5) |
| DLP (%) | 3995 (57) | 18 (31)# | 17 (60,7) | 29 (45,3)# | 12 (57,1) |
| DBT2 (%) | 569 (8,1) | 1 (1,7)# | 3 (10,7) | 6 (9,4) | 4 (19)# |
| SMOKING (%) | 1439 (20,5) | 10 (17,5) | 8 (28,6) | 14 (21,9) | 3 (14,3) |
| METAB SIND (%) | 1131 (16,1) | 8 (14) | 8 (28,6) | 8 (12,5) | 5 (23,8) |
| OBESITY (%) | 1568 (22,3) | 10 (17,5) | 12 (42,8)# | 12 (18,7) | 5 (23,8) |
| SEDENTARISM (%) | 4144 (59) | 25 (43,8) | 17 (60,7) | 40 (62,5) | 11 (52,4) |

**VASCULAR FINDINGS BY GROUP**

| PARAMETER | GENERAL (n 7015) Group C | VALS ( N 57) Group 1 | VALS HCT (N 28) Group 2 | VAL AML (N 64) Group 3 | VALS AML HCT (N 21) Group 4 |
|---|---|---|---|---|---|
| SBP mmHg | 133,7 ± 18* | 131,5 ± 16 | 141± 19 | 140,4 ± 23*+ | 141 ± 14 |
| DBP mmHg | 82,3 ± 11* | 81,6 ± 9 | 87,3 ± 12 | 85 ± 13 | 84,9 ± 12 |
| HEART RATE (lat xmin) | 67,8 ± 12 | 68,5 ± 11 | 70,6 ± 11 | 65 ± 9 | 67 ± 6 |
| % BP CONTROL | 4198 (60) | 42 (73,7)# | 12 (42,9)# | 34 (53) | 12 (57) |
| AO PP mmHg | 47 ± 14* | 46,2 ± 2,3* | 51,1 ± 15,3 | 50,3 ± 14,8 | 55,8 ± 18,6* |
| PERIPH PP mmHg | 51 ± 13* | 49,9± 10,6 | 53,8 ± 11,9 | 51,6 ± 12,9 | 55,4 ± 15 |
| AO AIX (%) | 28 ± 14 | 24,5 ± 10 | 32,3 ± 14 | 36 ± 16+ | 36,9 ± 11+ |
| PERIPH AIX (%) | -10 ± 33 | -19 ± 23 | -2,4 ± 32 | 8 ± 37* | 9 ± 25 |
| PWV m/s | 8,7 ± 2,3 | 8,6 ± 2* | 10 ± 2,2* | 10 ± 2,8* | 10,5 ± 2,7 |
| IMT mm | 0,69 ± 0,17 | 0,66± 0,14 | 0,77 ± 0,19* | 0,73 ± 0,15* | 0,78 ± 0,16 |
| Plaques % | 4672 (66,6) | 30 (53) | 23 (82) | 43(67)# | 17 (81)# |
| ENDOTHELIAL F (%) | 8,4 ± 11* | 9,9 ± 7 | 7,6 ± 8 | 9,8 ± 5* | 7,8 ± 5 |

## RESULTS

Mean age was 52.5 + 4.2 y.o. and males mean 73%. Older subjects, obese, smokers and those presenting Metabolic Syndrome (MS) were predominant in combination groups. (p<0.001)

Higher levels of BP and lower levels of BP control were observed in combination groups.(p<.001).

Vascular disease parameters were worse in combination groups (IMT, Plaques, PWV, CAP and Aix) but no EF (p<.001) than in monotherapy.

## CONCLUSION

With limitations of an observational study, we found that doctors use combinations in more sick patients, with high CV risk profile and it is related with more severe vascular compromise deserving more intensive therapeutic regimens.