

Weight loss therapy in obese hypertensive patients: the effect of orlistat versus metformin

O. Obertynska

National Pirogov Memorial Medical University, Vinnitsa, Ukraine

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Purpose: Obesity is independently associated with blood pressure (BP) and weight loss is recommended for BP reduction in overweight hypertensive individuals. However, the challenge remains to find an appropriate approach for weight reduction to influence BP status.

The aim was to evaluate the effects of orlistat (O) and metformin (M) on BP and metabolic homeostasis in obese hypertensive patients (P).

Methods: 106 P (mean body mass index (BMI) 34.2 kg/m^2 , waist circumference (WC) 104 cm) were included in the study. All followed a diet (D) for 3 month, after that 52 P started on M (1000 mg/day) and 52 on O treatment (360 mg/day) for 6 month. Anthropometry, metabolic profile, including lipids and oral glucose tolerance test with insulin, uric acid, serum creatinine, calculated GFR were performed at baseline and after 3, 6, 9 months. Homeostatic model assessment HOMA-R was calculated for insulin resistance. At baseline and after 9 months P underwent clinic and 24-hour BP measurements.

Results: At baseline was an excellent correlation between BMI and HOMA-R ($r=0.45$, $P<.01$), BMI and uric acid ($r=0.31$, $P<.05$). Also asymptomatic hyperuricemia was observed in 24.9%, dyslipidemia in 43.1%, impaired glucose tolerance in the 21% and chronic kidney disease in 9.0%. 29% of the P had >3 metabolic syndrome components. There was no significant reduction in BMI ($-0.9\pm 0.1 \text{ kg/m}^2$) and BP after 3 month of D in the whole group. The reduction of BMI was significant in both groups

after 6 months of pharmacological treatment ($P<0.01$ for O and $P<0.05$ for M) but was significantly greater in group O than in group M (-0.61 ± 0.3 versus $-0.32\pm 0.2 \text{ kg/m}^2$, $P<.01$). Treatment with O produced a 4.16% reduction in weight (101.0 ± 8.0 vs. $95.3\pm 7.1 \text{ kg}$, $P<.01$) and this reduction was more significant than the reduction produced by M (4.69 vs. 2.42%, $P<.01$). There were also greater reductions in WC with O therapy compared to M ($P<.05$). We also found a slight, though not significant, improvement in HOMA-R in both groups. BP decreased more in O than in M (SBP -6.7 ± 7.1 vs. $-3.2\pm 5.7 \text{ mmHg}$ and DBP -6.4 ± 6.2 vs. $-2.2\pm 8.1 \text{ mmHg}$, $P<.01$ for both). The O group had significantly greater reductions in total cholesterol and low-density lipoprotein cholesterol ($P<.01$ for both). Moreover, we found significant reduction of serum uric acid level after O therapy in comparison with M ($P<.01$).

Conclusions: 29% of the obese hypertensive patients had >3 metabolic syndrome components. Abdominal obesity was the most common, followed by dyslipidemia, asymptomatic hyperuricemia and impaired glucose tolerance. Lifestyle program with diet alone wasn't enough for a reduction in weight and BP. Weight-loss program with orlistat is more effective than with metformin and leads to better BP control in obese hypertensive individuals. The weight reduction by O is associated with lipid-lowering effect and reduction of serum uric acid level, what can result in the reduction of cardiovascular risk.