Design and method: This was a 48-week, prospective, observational, single-cohort study conducted in Argentina, Chile, Colombia, Guatemala, and Mexico. Adults with uncontrolled HTN, treated with A/I fixed combination per the treating physician’s judgment, were followed in routine care. Target BP was defined as SBP/DBP < 140/90 mmHg (<130/80 mmHg for patients with diabetes or renal disease).

Results: A total of 509 patients (57.6% females) were included with a mean (SD) age of 60.6 (12.5) years and a median Framingham 10-year risk score of 8.0%, 43.2% had comorbid dyslipidemia, and 24.8% were ever-smokers (5.9% current). Over 48 weeks, 97.4% of patients reported taking greater or equal 80% of prescribed doses. Statistically significant and clinically important improvements in SBP (-25.7 mmHg; p < 0.001) and DBP (-13.5 mmHg; p = 0.001) were observed. BP control was achieved by 62.7% of patients (99%CI: 57.5%–68.6%). In multivariate analysis, country of residence (p = 0.011), treatment compliance (OR = 6.9; p = 0.035), and diabetes presence (OR = 0.3; p < 0.001) were significant predictors of target BP. There were 124 Treatment Emergent Adverse Events (TEAEs) experienced by 89 (17.5%) patients, including 7 serious TEAEs by 5 (1.0%) patients. TEAEs were not related to A/I (76.6%).

Conclusions: In real life, an A/I fixed combination was effective in long-term management of patients with HTN, with BP control rates close to the PAHO target despite significant regional variability. Treatment adherence was significantly associated with BP control.

Tissue distribution and redox status Coenzyme Q10 after intravenous administration of ubiquinol to rat

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Objective: The effectiveness of coenzyme Q10 (ubiquinone) as a cardioprotector has been demonstrated in experimental and clinical studies. The protective effect is realized through a reduced form - ubiquinol. The aim of the present study was to investigate coenzyme Q10 tissue distribution and redox status after intravenous administration of ubiquinol.

Design and method: The experiments were performed on adult male Wistar rats. The pharmacokinetics of ubiquinol in rat plasma and target organs was studied after single intravenous injection of 1% ubiquinol solution (solvuhubinized form). The determination of the ubiquinol and the total concentration of coenzyme Q10 in the biomaterial collected at 0.25, 2, 8, 24, 48, 96, 192 hours after injection (5 animals per time point) was performed by HPLC with electrochemical detection.

Results: Tissue bioavailability of ubiquinol, calculated as the ratio (%) of the areas under the kinetic curves for the organ and plasma, was 15.1% for the left ventricle, 10.4% for the brain. The redox status (ubiquinol/total coenzyme Q10 ratio) was maintained relatively unchanged throughout the follow-up period: before administration, at elevated tissue levels (96 hours) and after returning to baseline (by the end of 8 days). These values differed from plasma ones (91.0 ± 2.3%) and were 42.0 ± 5.5%, 46.7 ± 6.6%, 41.3 ± 11.9% for the left ventricle of the heart; for the brain - 63.6 ± 7.6%, 68.9 ± 0.3%, 65.9 ± 5.1%; for the kidneys - 58.5 ± 8.9%, 62.8 ± 8.9%, 60.4 ± 2.0%, respectively. The obvious distinction in the redox status of CoQ10 in plasma and organs indicate to the oxidation of ubiquinol in the process of penetration into the tissues of organs due to the inclusion of the drug in local oxidation-reduction processes.

Conclusions: Intravenously administered ubiquinol penetrates into potential target organs - the brain and myocardium. Single administration provides long-term improvement.

Table 1. Changes of day and night-time blood pressure measured by ABPM

<table>
<thead>
<tr>
<th></th>
<th>FMS (n=159)</th>
<th>VAL (n=175)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBP (24-hours)</td>
<td>149.97±12.77</td>
<td>140.52±15.94</td>
<td>0.0009</td>
</tr>
<tr>
<td>ΔSBP</td>
<td>-15.17±1.21</td>
<td>-9.09±1.07</td>
<td>0.0009</td>
</tr>
<tr>
<td>DBP (24-hours)</td>
<td>91.18±11.11</td>
<td>85.20±9.60</td>
<td>0.0125</td>
</tr>
<tr>
<td>ΔDBP</td>
<td>-8.59±0.71</td>
<td>-6.13±0.69</td>
<td>0.0140</td>
</tr>
</tbody>
</table>

Table 2 demonstrated variability indices. Changes of night-time SBP was higher than day-time SBP in FMS group (14.39 ± 3.33 vs. -16.73 ± 3.39 mmHg, p = 0.2253), but not significant.

Conclusions: FMS showed strong BP lowering effect than VAL all day long. FMS treated group showed greater blood pressure lowering effect on both day and night-time SBP. FMS also showed more BP changes at night which suggests possibility of restoring dipping pattern in non-dipping hypertensive patients.
preservation of elevated tissue levels of coenzyme Q10 and enhanced antioxid-
ant protection, which is potentially important for the treatment of acute ischemic
events.

CIRCULATING LEVELS OF SELECTED MICRORNAS AND THEIR
RELATION TO NITRIC OXIDE LEVELS IN HYPERTENSIVE PATIENTS

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Objective: Pathophysiology of arterial hypertension (AH) is multifactorial and
highly complex. One of the first changes occurring during AH development is
increase in nitric oxide (NO) levels related to profound endothelial dysfunction.
miRNAs represent known regulatory molecules involved in endothelial dys-
function, however relationship between their circulating levels and levels of NO
is still not completely understood. The aim of the current study was to determine,
whether circulating levels of selected miRNAs differ between healthy and hy-
pertensive individuals and whether they correlate with the NO levels.

Design and method: Study was conducted as a prospective single-centre study.
42 consecutive patients (16 females) were enrolled. 28 newly identified untreated
hypertensive patients (group H; age 28.90 ± 6.69; BMI 26.45 ± 5.15 kg/m2)
and 14 healthy individuals (group C; age 30.18 ± 7.89; BMI 27.96 ± 3.75 kg/
m2). All enrolled subjects underwent 24-ABPM and plasmatic levels of NO as well
as of selected microRNAs (mir-21, miR-126, mir-155 and mir-210) were
determined using ELISA and qRT-PCR, respectively. Statistical analysis was per-
formed in the STATISTICA software using appropriate statistical tests.

Results: Statistically significant differences have been observed between the study
groups in the levels of nitric oxide (C vs. H: 30.93 ± 22.36 vs. 17.76 ± 10.53
[mM]; p < 0.005) and the plasmatic levels of all studied microRNAs (all of them
demonstrating statistically significant increase in hypertensive patients). Levels of mir-
21 (R = –0.416), mir-126 (R = –0.407) and mir-210 (R = –0.414) statistically
significantly (p < 0.05) negatively correlated with the levels of NO.

Conclusions: Levels of selected microRNAs are statistically significantly in-
creased while levels of NO are statistically significantly decreased in patients
with newly identified hypertension. All selected microRNAs are known to be involved
in the processes of fibrosis, cardiac remodelling and systemic inflammation, sug-
gesting all of these processes occurring within the initial phases of hypertension
development. Moreover, levels of mir-21, mir-126 and mir-210 negatively cor-
related with NO levels, suggesting potential regulatory link between these micro-
RNAs and NO-producing enzymes gene expression (e.g. INOS – known target of
mir-21 and mir-210).

MODULATION OF THE MICROBIOTA BY SALT AND MELATONIN
ALTERS GUT SHORT CHAIN FATTY ACIDS PRODUCTION

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Objective: Emerging data demonstrate correlation between microbiota and cardio-
vascular disease including hypertension. The microbiota is exposed to the host
diet, thus different diet components may change microbiota composition and me-
tabolism. Short chain fatty acids (SCFAs) are major products of microbial loss of
microbime that may alter fecal SCFA production.

Design and method: Dahl salt sensitive rats were divided into 3 groups (n = 10
High-throughput pyrosequencing of the 16S rRNA technic was used for microbiome
characterization. Chromatography /mass spectrometry (GC/MS) was used to mea-
sure the levels of SCFAs: acetic acid(AA), propionic acid(PA), butyric acid (BA)
and isobutyric acid (IBA) in fecal samples.

Results: Differences in microbial composition were noted between groups.
PCoA PC1 primarily separated controls from the HSD and HSD+melatonin diets.
In addition, the HSD+melatonin showed less within group microbial variations.
We further noted specific taxa associations with HSD, and HSD+melatonin pri-
marily from Proteobacteria and Firmicutes phyla.

HSD increased significantly fecal acetic, propionic and isobutyric acids but not
butyric acid. Melatonin attenuated this elevation of fecal SCFAs (Table 1).

Interestingly, higher butyric acid was negatively associated with taxa from the
Actinobacteria phylum and Moraxellaceae family, while higher acetic acid was
positively associated with taxa from the Moraxellaceae family.

Conclusions: Adding salt or melatonin to the diet has different impact on gut
microbiome that may alter fecal SCFA production.

POSSIBILITY OF IMPROVING THE QUALITY OF DIAGNOSIS
AND TREATMENT OF HYPERTENSION AND DYSLIPIDEMIA BY
PHYSICIANS EDUCATION

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Objective: To study the possibility of improving the educational level of primary
level health care physicians (cardiologists and internists) of Kursk city (Russia) aimed
at improving the quality of diagnosis and treatment of hypertension and dyslipid-
emia in the short and long term.

Design and method: The educational project (EP) covered all primary care phy-
sicians and cardiologists of Kursk (n = 144). During 1 year several seminars were
held for physicians by the experts of national guidelines on hypertension and dys-
lipidemia. The criteria for the efficacy of EP was the achievement of target levels
of blood pressure (BP) and total cholesterol, as well as positive changes of physi-
cians actions on the diagnosis and treatment of hypertension and dyslipidemia.
For this reason physician records from 300 randomly selected ambulatory cards was
analysed before the start of the EP and following 1 and 3 years.

Results: Following 3 years after the EP the frequency of achieving target
BP was 39.6% (n = 119), which is significantly higher than before the project
31.6%(n = 95), p < 0.05, but lower than 1 year after the: 51% (n = 153),
p < 0.01. The frequency of achievement of the target level of total cholesterol
after 3 years was 38.3% (n = 115), significantly higher than before the start of
the project 9,3%(p < 0.01), and differs a little from the figures obtained after 1
year- 43.3% (n = 130), p = 0.05. There were the improvement of situation with the
investigations aimed at revealing of target organ damages. So, after 3 years, heart
to soundtrack has appointed 24.7% (n = 74) of doctors, significantly higher than be-
fore the start of the EP (p < 0.001), but lower than 1 year after the EP (p < 0.05).
Impressive increase of investigations to reveal microalbuminuria was found - af-
ter 3 years-32,7% (n = 98), which is significantly higher than before the project
(p < 0.001) and after 1 year (p < 0.001).

Conclusions: EP demonstrated not only short, but long-term efficacy. However,
given a decline in several important variables of efficacy of education it should be
done on systematic basis.

FACTORS ASSOCIATED WITH TARGET ORGAN DAMAGE REGRESS
ON FIXED DOSE COMBINATION PERINDOPRIL/AMLODIPIN IN
HYPERTENSIVE PATIENTS WITH AND WITHOUT ISCHEMIC HEART
DISEASE

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Objective: In trial there were evaluated factors associated with target organ dam-
age (TOD) regression on fixed-dose combination (FDC) Perindopril-Amlodipin in
hypertensive patients with and without ischemic heart disease (IHD).

Design and method: There were included 60 patients with AH: 1st gr.-30
patients without IHD, 2nd gr.-30 with IHD. All patients in day of randomiza-
tion were administered FDC in daily baseline dose 5–5 mg with up-titration to
10–10 mg every two weeks. If target BP was not achieved after 6 weeks the in-
dapamide 1.5 mg was added. 66.7% and 96.7% patients of 1st and 2nd groups
took beta-blockers. All patients were done: body mass index measurements, of-
ice and ambulatory BP measurements, pulse wave velocity(PWV) and aorta SBP,
assumptions index adjusted to HR 75 (Aix75) evaluation, biochemical analysis,