The role of intervention in improving hemodialyzed patients adherence to hypotensive therapy

Dawidowska J.[1], Dudek I.[2], Stachewicz G.[1], Siluk D.[1], Lizakowski S.[2], Markuszewski M.J.[1]

[1] Department of Biopharmacy and Pharmacodynamics, Medical University of Gdansk, Poland

[2] Department of Nephrology, Transplantology and Internal Diseases, Medical University of Gdansk, Poland

E-mail: joanna.dawidowska@gumed.edu.pl

www.mug.edu.pl

Introduction

Adherence to the therapeutic recommendations is one of the elements of an effective therapy and is particularly important in the treatment of chronic diseases including chronic kidney disease (CKD) and arterial hypertension. Both of these conditions significantly increase the incidence of cardiovascular disease (CVD) and the mortality rate in comparison to the general population.

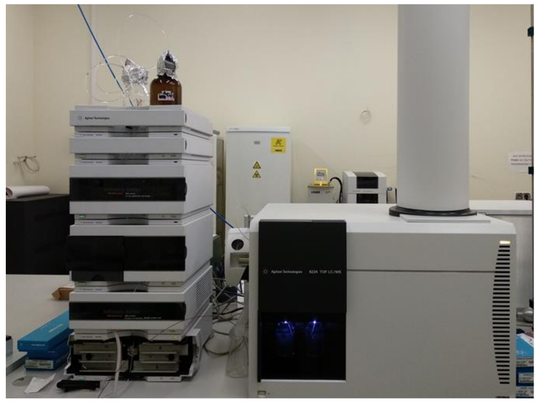
A high level of adherence to a large extent depends on the patient's knowledge of the essence of his or her disease, the principles of non-pharmacological treatment and pharmacotherapy management, as well as the consequences of poor cooperation in this aspect.

The performed intervention was based on discussion with a patient on the importance of adherence to physicians recommendations.

Sample preparation

As part of **qualitative analysis**, high performance liquid chromatography coupled with electrospray ionization and time of flight mass spectrometry detection **(LC-ESI-TOF/MS)** was used as an adequate analytical tool.

1. 150 µl of plasma was added to the vial.
2. Vortex the vial for 5 min.
3. 450 µl of the folution of MeOH:EtOH (1:1, v/v) was added to the vial.
4. Vortex the vial for 5 min.
5. Complete evaporation in 40 °C
6. The supernatant was diluted using 150 µl of methanol.
7. The solution was filtered using nylon filters (0.2 µm pore size)



Study group

The study was performed among both control (n=28) and treatment group (n=28). Patients qualified to the treatment group had undergone medical intervention, while control group patients were supposed to continue standard treatment without intervention.

Instrumental analysis

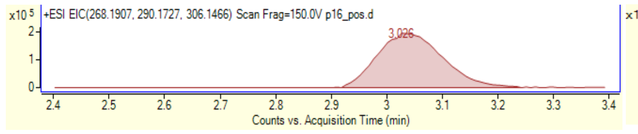


Fig. 1. Treatment group patient plasma analysis (before intervention) resulted in determining the presence of prescribed metoprolol.

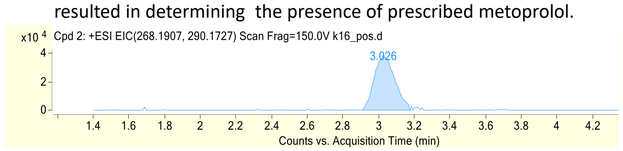


Fig. 2. Treatment group patient plasma analysis (after intervention) determined the presence of metoprolol.

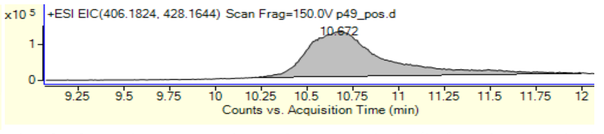


Fig. 3. Control group patient plasma analysis (before intervention) resulted in determining the presence of not prescribed nebivolol.

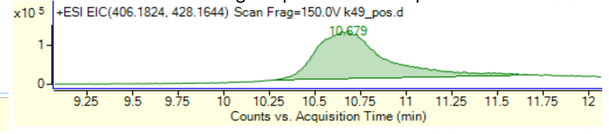


Fig. 4. Control group patient plasma analysis (after intervention) confirmed the presence of nebivolol.

The results obtained using the LC-ESI-TOF/MS were analyzed taking into consideration the available medical records of the patients. Analysis of the chromatograms allowed us to reach the conclusion that the majority of the patients examined did not entirely follow physicians recommendations. For example patient no. 16 was consistent with the treatment both before and after the intervention as the presence of metoprolole is clearly visible (Fig. 1 and 2). In contrast, results from samples of patient no. 49 proved that the patient was self-medicating himself with a nebivolol (Fig. 3 and 4) while the prescribed beta blocker was bisoprolol.

Future directions

- ✓To broaden the scope of patients involved in the study
- ✓Quantitative targeted method development
- ✓Detailed statystical analysis of the obtained results
- ✓Creating educational brochures for patients in order to minimize the problem of physicians recommendations adherence