ABSTRACT

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Candidate	**Mgr. Tereza Hendrychová**
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Title of Doctoral Thesis	**The analysis of selected factors that influence the pharmacotherapy of diabetes mellitus**

Introduction: Diabetes mellitus (DM) requires continuing health care as prevention of the rise of acute complications and lowering the risk of development and further progression of chronic complications. The choice of the treatment method is fundamental for reaching the therapeutic aims. That is why medical staff members should continuously monitor information about new possibilities of the therapy including the current ones which are still continuously specified.

The management of diabetes mellitus requires the active approach of patient as well as the complex medical health care. The emphasis should also be placed on his/her adherence or attitudes and on the motivation to the treatment.

Search part

Aim: The aim of the search part was to analyze the possibilities of DM type 1 pharmacotherapy with the focus on the comparison of the treatment of CSII (continuous subcutaneous insulin infusion) and MDI (multiple daily injections) in adult diabetics with DM type 1 and the possibility of use of some peroral antidiabetic drugs (PAD) in the adjuvant treatment of patients with DM type 1.

We also analysed selected drug interactions (DI) in the elderly with DM with the focus on the risk of hypoglycaemia in combinative treatment and the combination of antidiabetic drugs with hypolimidaemics and antihypertensives.

Methodology: The literature search in the indexed database PubMed was carried out. The Micromedex® database (Drugdex system®), Kompendium Infopharm and the Database of registered pharmaceuticals of SÚKL (State Institute for Drug Control) were checked in the case of DI analysis as well.

Results: CSII leads to slightly lower values of the glycated haemoglobin (HbA1c) and to the need of lower insulin doses. If there is a weight change after the changeover to CSII, the weight is gently higher. There is a lower frequency of hypoglycaemia in CSII when compared with MDI. There was not enough information in most found works for the comparison of the frequency of further side treatment effects.

There has not been enough evidence in common clinical practice for the use of adjuvant treatment of PAD in DM type 1. Metformin, pioglitazone and incretins appear to potentially be the most suitable ones. Antidiabetic DI are not very frequent and mostly have a minimal impact in clinical practice. In the elderly one should especially consider the possibility of increasing the risk of hypoglycaemia in the combinative treatment. The lowest risk of interactions in the elderly with DM is in the cases of insulin, metformin, DPP-4 inhibitors (except for saxagliptin), GLP-1 analogs and acarbose treatment.

Conclusion: The strict enforcement of new therapeutic ways at the expense of the time-proved curative methods does not have to be unambiguously beneficial especially from the point of view of the manifold higher costs. On the other hand, it is necessary to monitor the information about the effectiveness and safety of accessible management strategies and even potentially new usable therapy possibilities for providing the optimal health care in patients with DM. The cooperation of other medical staff members and pharmacists can be beneficial not only in the DI sphere.

Original part

The analysis of adherence to medical recommendations and identification of specific adherence correlates in adults with type 1 diabetes

Aim: The aim of the work was to analyze the adherence to medical recommendations and identify its potential correlates in adults with type 1 diabetes.

Methodology: An observational cross-sectional study based on questionnaires and data from patients' medical records was carried out in the Diabetes Center of the University Hospital in Hradec Králové. The adherence to medical recommendations was evaluated by means of the Self-Care Inventory-Revised and the satisfaction with the treatment by the help of the Diabetes Treatment Satisfaction Questionnaire-status version. Selected parametric and non-parametric tests were used at the statistical evaluation in PASW 18.0 software.

Results: The study included 111 patients (59.5 % women), 53 % of them were treated by CSII. The average age was 42.4 years, the average HbA1c 66.2 ± 15.3 mmol/mol and the average insulin doses 0.6 ± 0.3 IU/kg/day. The number of hypoglycaemia episodes (including the serious ones) in the course of the last month was 3.6 ± 3.2 on average. It is especially problematic for patients to keep the regime steps. The adherence was associated with the satisfaction with treatment ($B = 0.495$; $P = 0.004$) and the frequency of glycaemia self-monitoring before meals ($B = 0.267$; $P = 0.003$). The adherence was not related to any of the demographic or clinical characteristics not even to hypoglycaemia frequency or undesirable incidents during the treatment.

Conclusion: The satisfaction with treatment is the key factor that one should pay attention to within the context of the adherence in adults with type 1 diabetes.

The analysis of eating habits with the focus on fat and fiber intake and the relations between the intake of fat and fiber in diet and the basic parameters of the illness compensation in patients with type 2 diabetes

Aim: The aim of this work was to analyze the eating habits with the focus on the fat and fiber intake in diet and relations between the fat and fiber intake and basic parameters of the illness compensation in patients with type 2 diabetes.

Methodology: An observational cross-sectional study using the Fat- and Fiber-related Diet Behavior Questionnaire was carried out. It was supplemented by questions about gender, age, the length of diabetes, and the data from the patients' medical records. The study was accomplished in 3 diabetes outpatient clinics in Hradec Králové and Pardubice. Selected parametric and non-parametric tests were used at the statistical evaluation in PASW 18.0 software.

Results: The study included 200 patients (54.5 % men) of an average age of 66.2 ± 10.1. The average HbA1c was 59.0 ± 18.9 mmol/mol. The patients get better results in lowering the fat intake than in increasing the fiber intake in diet. The patients rather modify the meals (e.g. to a lower fat amount) that they are used to consuming than exclude them from their diet or substitute them by another type of food. Men take in a higher fat amount than women in diet ($P = 0.002$). Women with a higher value of HbA1c and waist circumference refer to a lower fat intake in their diet ($\rho = -0.248$; $P = 0.027$; $\rho = -0.254$; $P = 0.024$ respectively).

Conclusion: Patients with type 2 diabetes report different dietary behaviour in dependence on gender. The submitted results can help increase the effectiveness of dietary education thereby even the adherence of patients in the field of dietary recommendations. Medical staff members educating diabetics should especially focus on the way how to specifically support the fiber intake in patients.