

# BIOCHEMICAL MECHANISMS OF HIGH-PROTEIN DIET (DUKAN DIET) MAIN AND SIDE EFFECTS

Batrakova A. M., Syvak O. V.

Scientific supervisor: Shkapo A. I.

National University of pharmacy, Kharkiv, Ukraine

shkapo.a@gmail.com

**Introduction.** It is well known that the prevalence of obesity worldwide is very large, and the search for new methods of correction of such conditions today is a topical issue. It is also very important that the conduct of any pharmacotherapy for obesity is common accompanied by the development of complications of various severity degrees, which is why many doctors recommend non-pharmacological treatment – diet therapy, in particular the Dukan diet. However, it should be noted that fundamental changes in human diet can also lead to the formation of side effects that today are little studied.

**Aim.** The aim is to study the biochemical mechanisms of the high-protein diet therapy main and side effects.

**Results.** According to the literature data, the main effects of protein diet (Dukan diet) occur through a deep shortage of the carbohydrate food components that is accompanied by the development of energy starvation of cells and requires the involvement of other sources of energy – primarily peripheral liver fat oxidation energy with ketone bodies formation. It is known that spontaneous decarboxylation of acetoacetate with the formation of highly toxic acetone can lead to the development of severe complications of blood ketosis. This is the case of excessive synthesis of ketones in the liver due to the lack of NADH (H<sup>+</sup>) in the conditions of glucose deficiency. Also, excessive oxidation of fats can cause the release of free acetoacetate in the blood with the formation of ketoacidosis. However, it should be noted that this diet in the early stages involves the use of a large number of proteins without cellulose-containing products that are necessary for the active intestine peristalsis. Therefore, excess consumption of protein products and sluggish peristalsis may be accompanied by the chyme stagnation formation and sharp increase of putrefaction in the large intestine with the formation of the excess amount of over-toxic compounds (indole, cresol, putrescine, cadaverine), which can lead to poisoning of the body.

**Conclusions.** Thus, the Dukan high-protein diet contributes to the peripheral fat oxidation in the liver, however on the other hand it leads to complications such as blood ketosis and ketoacidosis, and increases the risk of protein poisoning through increased formation of products of putrefaction in the large intestine.