

## **Summary of the presentation**

### **Topic: Chance or risk: what is the best lipid composition in KDT**

#### Objective:

To provide evidence that diet manipulation in fat content has a clinical relevance in the use of Ketogenic diets

#### Introduction:

Ketogenic diets have been used for almost a century in the treatment of epilepsy in children and have also been used in the treatment of inborn errors of intermediary metabolism, such as pyruvate dehydrogenase deficiency and Glut 1 deficiency syndrome.

Since the 1920s, when the therapeutic value of the ketogenic diet was proposed, its composition has not changed much. The classic ketogenic recipe consists of a 4:1 caloric ratio of fats and carbohydrates plus protein. Since the emergence of the ketogenic diet as a therapeutic modality, little attention has been paid to the relative proportions of the different types of fats, and most of the lipids consumed in these diets have been long-chain saturated fatty acids. Since a ketogenic diet can often last from several months to a lifetime, the fat content of the diet can have profound effects on metabolism and overall chronic health.

Regardless of the variant, replacement diets include mainly high-fat foods. With respect to fat intake, what matters for maintaining the ketogenic ratio is the amount of fat consumed. However, from a nutritional point of view, the fatty acid composition of the diet is also important. It is suggested that with an optimized dietary fat intake a healthy serum lipid profile can be achieved.

Several studies have reported an increase in serum lipids and risk of hyperlipidemia in patients treated with replacement diets, especially with the more restrictive variants. To reduce cardiovascular risk, several authors suggest increasing the ratio of polyunsaturated fatty acids (PUFA) + monounsaturated fatty acids (MUFA) to SFA in the ketogenic diet.

The aim of this conference will be to

- show the scientific evidence demonstrating that switching to PUFA improves the lipid profile of KD patients. Strategies to increase PUFA intake (addition of soy lecithin, PUFA-rich vegetable oils, etc.) will be discussed.
- demonstrate the effects of changing the ratio of long-chain saturated fats to medium-chain fatty acids in relation to treatment flexibility and seizure control (and studies of C8-C10 and anticonvulsant properties).
- explore and discuss the effects of adding C7 as an energy substrate in relation to seizure control in patients with epilepsy and/or glut1 deficiency.

At the end we will discuss the effects on lipid manipulation during the cooking process, and give tools to clinicians for adopting a more flexible approach, tailored to the patient, combining elements of one or more lipid variants during KD, knowing the risks and possible adverse effects of these changes.