Influence of L-carnitine on the Expression Level of Adipose Tissue miRNAs Related to Weight Changes in Obese Rats

Maryam Nazari*, Majid Karandish, Alihossein Saberi
*Jundishapur University of Medical Sciences, Ahvaz, Iran

Background- Molecular mechanisms of most anti-obesity drugs are remained to be clear. MicroRNAs that are non-coding RNA molecules supposed to regulate biological processes concomitant to obesity and have attracted a lot of attention in scientific communities. miR-*27a* and *miR-143* expression levels in obese and non-obese rats during weight changes and L-carnitine (LC) effects on them was investigated in this study.
Material and Methods- In the present study 12 male *Wistar* rats were randomly divided into normal-fat diet (NFD) and high-fat diet (HFD) groups to develop obesity. After 8 weeks rats were weighted and half of diet induced obese rats were randomly selected to receive 200mg LC kg^{-1} body weight for 4 weeks. At the end, epididymal fat was isolated to investigate expression level of microRNAs by Real-Time PCR.
Results- After 12 weeks, HFD in comparison with NFD caused significant decrease and increase in expression levels of *miR-27a* and *miR-143* respectively. These changes were modified in groups which had received LC in a 4-weeks period. Furthermore, rats in this group gained less weight.
Main conclusions- Findings of this study suggest that the changes of microRNAs expression probably play a role in pathogenesis of obesity. They might be modulated by means of dietary agents and supplements and modify weight gain trend.
Keywords- High fat diet- Normal fat diet- L-carnitine- *miR-27a*- *miR-143*- Obesity

Biography

Maryam Nazari has completed her PhD in Nutrition last year at the age of 33 year from Jundishapur University of Medical Sciences, Ahvaz, Iran. She has a good research background in biology. Her minor in PhD course was Medical Biotechnology which provided her with significant laboratory and academic experience. She has 9 published articles in peer-reviewed journals in Nutrition, Pharmacology and some related ones.

Presenting author details
Full name: Maryam Nazari
Contact number: 00989121580731
Twitter account: -
Linked In account: maryam-nazari-9921345a
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