Short Communication

iMedPub Journals
www.imedpub.com

Journal of Clinical and Molecular Pathology

2019
Vol.3 No.1:22

DOI: 10.36648/molecularpathology.3.1.22

Liver and Diabetes: Molecular and Clinical Outcomes

Ahed J Alkhatib[1,2*]

[1]Department of Legal Medicine, Toxicology of Forensic Science and Toxicology, School of Medicine, Jordan University of Science and Technology, Ar Ramtha , Jordan.

[2]International Mariinskaya Academy, Department of Medicine and Critical Care, Department of Philosophy, Academician Secretary of Department of Sociology, Ar Ramtha, Jordan

[*]**Corresponding author**: Ahed J Alkhatib, International Mariinskaya Academy, Department of Medicine and Critical Care, Department of Philosophy, Academician Secretary of Department of Sociology, Ar Ramtha, Jordan, Tel: +962795905145; E-mail: ahed.alkhatib64@yahoo.com

Received date: October 04, 2019; **Accepted date**: October 21, 2019; **Published date**: October 28, 2019

Citation: Alkhatib AJ (2019) Liver And Diabetes: Molecular And Clinical Outcomes. J Clin Mol Pathol Vol.3

Abstract

This study is a follow of our previous studies in which we have shown that diabetes is a result of stress. Here, we may use the term "general pooling stress" instead of metabolic syndrome as will be demonstrated in following sections. The present study showed that diabetes type 1 has impacts on liver of diabetic rats through the induction of molecular changes through up-regulation of HSP90 and down-regulation of HSP70.

Actually, our data support the idea of autoimmunity involvement in the pathogenesis of type 1 diabetes. Furthermore, when liver pathology is not addressed in diabetic cases, the chance to identify therapeutic targets is likely to be lacked.

Conclusions: liver plays a vital role in the development and pathogenesis of diabetes type1 and its therapeutic involvement is likely to improve the status of patients with this type of disease. Our results may form novel future research lines, particularly molecular therapeutic strategies.

Keywords: Diabetes type 1; Stress proteins; HSP70; HSP90; Up-regulation; Down-regulation

Introduction

This study involves philosophical and scientific approaches at the same time. From a philosophical point of view, the concept of total daily life philosophy has been introduced by the authors [1]. It implies the involvement of various philosophical approaches in treating different topics among which is diabetes. In this study, the impacts of diabetes type 1 were studied in liver [2].

Liver has a classical role in diabetes such as the involvement of lipid and its role in induction of diabetes [3]. Furthermore, it has been shown that the accumulation of lipid is associated with insulin resistance. It has also been shown that liver is insulin resistant [4-6].

About to Study

We have conducted several studies using animal models (rats) to have a fresh look into diabetes. We have found that there is an axis between brain and other organs leading to increased impacts of diabetes in other organs. In other words, we have checked the possibility that diabetes may exceed the limits of being metabolic disease to neurologic disease [7].

Our previous studies showed that white matter has a major role in diabetes and diabetic neuropathies. The pathologic alterations were detected by immunohistochemistry at early stage of diabetes initiation. We found that down-regulation of HSP70 in white matter, and up-regulation of inducible nitric oxide synthase (iNOS). This means that diabetes is accelerated through this molecular mechanism in which defense mechanisms are altered [8,9].

We have recently examined the possibility of involvement of liver of diabetic rats by similar molecular mechanisms. We studied the expression and localization of two HSP70 and HSP90 in the liver of diabetic and control groups. We found similar patterns of immunological reactivity in liver. First of all, the expression of HSP90 was significantly up-regulated in liver cells compared with that in control group, while HSP70 was significantly down-regulated in liver cells compared with that in control group. We also found that vascular system was also affected by the same patterns of immunological reactivity of both HSP70 and HSP90.

These results stimulated me to ask the following question: Is diabetes an inflammatory disease?

This is a big question and should be addressed in future research.

Conclusion

The present study showed a central role of liver in the pathogenesis of diabetes, and any therapeutic intervention for diabetes should take the molecular impacts on liver into account even before developing full episodes of diabetes.

References

1. Ahed J Alkhatib, Oleg Ju Latyshev (2019) Total Daily Life Philosophy (Tdlp): New Conceptual and Fundamentals. DIALOGO 5: 131-134.
2. Kawther Faisal Amawi, Inas Saleh Al-Mazari, Ali Alsarhan, Hamza Qasim Mohammad Alhamad, Ahed J Alkhatib (2019) Diabetes upregulates the expression of HSP90 and downregulates HSP70 in the liver of diabetic rats. Comp Clin Pathol 28: 473-478.
3. Zhang Q, Huang Y, Li X, Liu H, He B, et al. (2019) Tangduqing granules attenuate insulin resistance and abnormal lipid metabolism through the coordinated regulation of PPARγ and DGAT2 in Type 2 diabetic rats. Journal of Diabetes Research 7403978.
4. Samuel VT, Petersen KF, Shulman GI (2010) Lipid-induced insulin resistance: Unravelling the mechanism. The Lancet 375: 2267-2277.
5. Hardy OT, Czech MP, Corvera S (2012) What causes the insulin resistance underlying obesity? Current Opinion in Endocrinology & Diabetes and Obesity 19: 81-87.
6. Kakehi S, Tamura Y, Takeno K (2016) Increased intramyocellular lipid/impaired insulin sensitivity is associated with altered lipid metabolic genes in muscle of high responders to a high-fat diet. Am J Physiol Endocrinol Metab 310: E32-E40.
7. Ahed J Alkhatib (2019) The Progression of a Disease Depends on Downregulation of Heat Shock Protein 70 (HSP70) And Upregulation of Inducible Nitric Oxide Synthase (iNOS): A New Medical Hypothesis. Biomed Discoveries, pp: 1-3.
8. Ahed Al-khatib (2013) Co-expression of inos and hsp70 in diabetes type 1 makes a rational hypothesis to explain the diabetic neuropathy. European Scientific Journal 9: 1857-1881.
9. Ahed J Alkhatib (2019) New insights to diabetes: Is diabetes a metabolic disorder or a neurological disease? Int J Diabetes Metab Disord 4.