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The clinical significance of long non-coding RNAs MALAT1 and CASC2 in the diagnosis of HCV-related hepatocellular carcinoma

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## Abstract

Background Globally, hepatocellular carcinoma (HCC) is the second most common cause of cancer related death due to a lack of early predictive and/or diagnostic tools. Thus, research for a new biomarker is important. LncRNAs play a functional role in target gene regulation and their deregulation is associated with several pathological conditions including HCC.

Objective

This study aimed to explore the diagnostic potential of two LncRNAs MALAT1 and CASC2 in HCC compared to the routinely used diagnostic biomarker.

## Materials and methods

The current study is a case-control study carried out at Fayoum University Hospital and conducted on 89 individuals. The study included three groups of 36 HCC patients on top of HCV (HCC/HCV), 33 HCV patients, and 20 healthy volunteers as a control group.

All study subjects were subjected to radiological examinations. The determination of CBC was performed by the automated counter and liver function tests by the enzymatic method were performed.

In addition, HCV RNA quantification and the expression level of two LncRNAs (MALAT1 and CASC2) were performed by qRT-PCR

## Results

The results revealed a statistically significant difference between study groups regarding liver function tests with a higher mean in HCC/HCV group. Also, serum MALAT1 signifi cantly up-regulated in HCV (11.2±2.8) and HCC/HCV (4.56±1.4) compared to the control group. Besides, serum CASC2 levels in the HCV group were significantly upregulated (14.9 ±3.6), while, downregulated in the HCC group (0.16± 0.03). Furthermore, The ROC analysis for diagnostic efficacy parameters indicated that CASC2 has higher accuracy (94.6%) and sensitivity (97.2%) for HCC diagnosis than AFP with an accuracy of (90.9%), sensitivity (69.4%), and MALAT1 showed an accuracy of (56.9%), sensitivity (72.2%).

**Conclusion**

Our study results indicated that CASC2 is a promising biomarker and is considered better and could help in HCC diagnosis on top of HCV than MALAT1 and the routine biomarker AFP .