

MicroRNA Differential Profiling in Hepatitis C Patients Undergoing Major Surgeries: Propofol versus Sevoflurane Anesthesia

Authors : Hala Demerdash, Ola M. Zanaty, Emad Eldin Arida

Abstract : Background: This study investigated the microRNA expression changes induced by Sevoflurane and Propofol and their effects on liver functions. Patients and methods: The study was designed as randomized controlled study, carried out on 200 adult patients, scheduled for major surgeries under general anesthesia (GA). Patients were randomly divided into four groups; groups SC and PC included chronic hepatitis C (CHC) patients where SC group are patients receiving Sevoflurane, and PC group are patients receiving Propofol anesthesia. While S and P groups included non- hepatitis patients; S group are patients receiving Sevoflurane and P group are patients receiving Propofol. Anesthesia in Group S and SC patients was maintained by sevoflurane, while anesthesia in Group P and PC patients was maintained by propofol infusion. Blood samples were analyzed for PT, PTT and liver enzymes. Serum samples were analyzed for microRNA before and after surgery. Results: Results show miRNA-122 and miRNA-21 were absent in serum of S and P groups in pre-operative samples. However, they were expressed in SC and PC groups. In post-operative samples; miRNA-122 revealed an increased expression in all groups; with more exaggerated response in SC group. On the other hand miRNA-21 revealed increased expression in both SC and PC groups; a slight expression in S group with absent expression in P group. There was a post-operative negative correlation between miR-122 and ALT ($r=-0.46$) in SC group and ($r=-0.411$) in PC group and positive correlation between ALT and miR-21 ($r=0.335$) in SC group and ($r=0.379$) in PC group. The amount of blood loss was positively correlated with miR-122 ($r=0.366$) in SC group and ($r=0.384$) in PC group. Conclusion: Propofol anesthesia is safer than Sevoflurane anesthesia in patients with CHC. Sevoflurane and Propofol anesthesia affect miRNA expression in both CHC and non-hepatitis patients.

Keywords : anesthesia, chronic hepatitis C, microRNA, propofol, sevoflurane

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