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RATIONALE OF ORAL ANTIOXIDANTS THERAPEUTIC INTERVENTION IN HAEMORRHEOLOGICAL ABNORMALITIES IN ALCHOHOLIC LIVER DISEASE

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It has been shown that alcohol might impair erythrocyte (RBC) membrane fluidity and lipid composition. In particular, low-molecular thiol concentration has been pointed out as a main step of such derangement. The aim of this study was to test the effect of a novel acid-resistant antioxidant on the haemorrheological parameters in alcoholics. Thirty alcoholics (150g ethanol/day for 3 to 5 years) were randomly, double-blindly allocated into 2 groups which were given for 2 weeks 18g/day of Bionormalizer (obtained from biofermentation of Carica Papaya, Osato Research Foundation, Gifu, Japan) dissolved in 5ml of water at bedtime and 3h prior examination or placebo devoid of any antioxidant property. On the examination day blood samples were taken for: routine tests, alcohol, acetaldehyde, plasma GSH and erythrocyte (RBC)-malonildialdehyde (MDA). Haemorrheological studies were as follows: blood and plasma viscosity, whole blood filterability, RBC-membrane fluidity by electron spin resonance, RBC-aggregation index by photometric rheoscopy and RBC-deformability by ektacytometry (laser diffraction analysis). As compared to controls, alcoholics on placebo treatment showed no change of plasma viscosity but a significantly higher RBC-MDA, blood viscosity ($p<0.05$) and lower plasma GSH, whole blood filterability and RBC membrane fluidity ($p<0.01$). No relationship appeared between biochemical tests and RBC membrane fluidity. Bionormalizer group showed a significant recover to control values of either blood viscosity and whole blood filterability ($p<0.01$) and a partial although significant improvement of RBC-membrane fluidity ($p<0.05$), RBC-MDA and plasma GSH. As compared to control, RBC aggregation decreased in alcoholics ($p<0.05$) and was not affected by Bionormalizer. However, Bionormalizer significantly improved ($p<0.05$) the reduced RBC deformability observed in alcoholics ($p<0.05$ vs control) and which correlated to RBC-MDA (r: 0.62, $P<0.05$). These preliminary data suggest that an effective antioxidant supplementation is able to improve the haemorrheology in alcoholics either by directly affecting the ethanol-related lipoperoxidation and xanthine oxidase system activation and/or by modifying RBC membrane characteristics.