

6. Effects of Sodium Selenite Supplementation on the Formation of Pre β -high-density Lipoprotein in Human Primary Hepatocytes

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[Background] A low level activity of glutathione peroxidase-1 (GPx-1, a selenium-dependent enzyme) is associated with the development of cardiovascular events. One major risk factor for cardiovascular diseases (CVD) is low concentration of high-density lipoprotein (HDL). In human studies, selenium, an essential trace element, had a positive correlation with HDL concentrations. Therefore, selenium supplementation may be beneficial for preventing CVD, but the precise mechanism is still unknown. The purpose of our study was to explore the effects of selenium on pre β -HDL formation in a human primary hepatocyte cell (HC) line. **[Findings]** The HC cell line was cultured in medium supplemented with 0-10 μ M sodium selenite. Cell viability, GPx-1 activity, pre β -HDL formation related protein and RNA expressions were measured. A cell viability assay showed that 5 μ M was the half-maximal inhibitory concentration value of sodium selenite after 72-hour incubation. The saturation of GPx-1 activity reached after 72-hour of incubation with 50nM of sodium selenite. This result was confirmed by increased GPx-1 protein and RNA expression determined by western blot and q-PCR respectively. In contrast, the expression levels of pre β -HDL formation-related proteins and RNA, such as apolipoprotein A-I (ApoA-I), apolipoprotein A-II, and ATP-binding cassette transporter-1, were not significantly increased. However, 50 nM sodium selenite significantly increased protein and mRNA expressions of ApoA-I in HC when compared with control (0nM). Therefore, we cannot exclude the possibility that sodium selenite has

influence on ApoA-I expression in some extents. **[Conclusion]** These results suggest that under in vitro conditions, selenium supplementation increases GPx-1 activity protein and RNA expression without affecting pre β -HDL formation in the liver. However there is still a possibility of supplementation effect of low doses sodium selenite on ApoA-I.

7. Impact of Nutritional Education on Knowledge and Attitude of Iodine Deficiency Disorders of Posyandu Cadres in Malang District, East Java Province, Indonesia

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[Background and Objective] About 50% of people in Indonesian are suffering from nutritional deficiency of various forms, one of those is Iodine Deficiency Disorders (IDD). A range of strategies is needed to combat nutritional problems in Indonesia. It is important to strengthen the independence of public sector to solve the problem in the community without relying on the government. To that end, empowering the community by enhancing the knowledge and ability of the community, enable them to identify and solve their problems, and build community self-reliance is important. An activity can be categorized as empowerment if able to strengthen, improve or develop the potential of the local community. *Posyandu* is a community-based health forum in Indonesia, focusing on five activities: Maternal and Child Health, Family Planning, Immunization, Nutrition, and Prevention of Diarrhea. It is more institutionalized in the society than other community-based activities. Educating the Posyandu cadres as health leaders in the community may be effective countermeasure for the nutritional deficiency. The objective of this study was to investigate the impact of nutritional training in increasing cadres' knowledge and attitude towards IDD and to determine which group (age, education, community activity membership, work experience, training) having difference to the knowledge and attitude in order to estimate the required qualification of better cadres. **[Methods]** Quasi experimental study was carried out using 40