

1.13.1 Coronary artery disease

Data from different studies supported magnesium effect on the incidence of fatality in CAD patients. Moreover, studies showed an evidence of a significant correlation between hypomagnesemia and IHD (Ford, 1999; Ueshima, 2005).

Magnesium protective role in CAD is explained by multiple factors, including reducing calcium levels, which is essential for CAD, dilate coronary arteries, reduce the total peripheral resistance, and inhibition of platelet functions (Ford, 1999; Ueshima, 2005; Del Gobbo *et al.*, 2013).

Therefore, an increased intake of dietary magnesium can offer protection against cardiovascular deaths as magnesium may protect cardiac cells from the effects of CAD and improves cardiac cells ability to resist CAD effects (Ueshima, 2005).

1.13.2 Hypertension

Several studies have shown an inverse relationship between magnesium levels and blood pressure. However, the exact mechanism behind this association is still unclear (Purvis & Movahed, 1992 and Cunha *et al.*, 2012).

Magnesium has an essential role in the regulation of electrolytes movement across cell membrane because it is significant in stimulating Na/K ATPase pump that accelerates potassium movement into the cell and sodium movement out of the cell. Additionally, as calcium antagonist, magnesium is vital in decreasing calcium entry into cell, thus, magnesium deficiency can lead to increased intracellular sodium and calcium concentrations leading to an increased peripheral vascular resistance and vasospasm,