approve the role of magnesium therapy in asthma treatment, magnesium has been used for years as a therapeutic agent for this respiratory disease (Swaminathan, 2003; Blaszczyk & Duda-Chodak, 2013; Qu *et al.*, 2013).

1.10 Magnesium and the metabolic syndrome

Metabolic syndrome is an increasing problem in both developed and developing countries and thus, is considered as a disease of modern times. This disorder is characterized by the simultaneous presence of several metabolic risk factors including obesity, hypertension and impaired glucose tolerance. Furthermore, dyslipidemias, prothrombotic state and active acute phase reactants (elevated c-reactive protein) may also contribute to this disorder. In 2002, it was estimated that one quarter of American adults is affected by this disorder. To dissect the factors responsible for each single condition, the various diseases underlying the metabolic syndrome will be discussed separately in detail (Swaminathan, 2003; Geiger & Wanner, 2012; Das, 2014 and Dibaba *et al*., 2014).

1.11. Magnesium and diabetes mellitus

Hypomagnesemia is often related to type II diabetes mellitus. Incidence rates of 13.5-47% have been reported. Many factors contribute to the development of magnesium deficiency in diabetic patients, these factors include hereditary factors, poor dietary intake, autonomic dysfunction, altered insulin metabolism, glomerular hyperfiltration, osmoticdiuresis, recurrent metabolic acidosis, hypophosphataemiaand hypokalaemia (Gonzalez *et al.*, 2013; Liamis *et al.*, 2014).