

## 1.7 Hypermagnesemia

Regularly, excess of magnesium will not cause a health risk in healthy individuals as the excessive amount will be eliminated by kidneys, and therefore, patients with impaired renal functions increases the risk of magnesium toxicity. However, high doses of magnesium from drugs and dietary products may cause clinical manifestations, most commonly diarrhea associated with nausea and abdominal cramps. Well known forms of magnesium that commonly cause diarrhea include magnesium carbonate, chloride, gluconate and oxide. The mechanism by which diarrhea occurs is the osmotic activity of unabsorbed salts in the intestinal lumen (Purvis & Movahed, 1992; Swaminathan, 2003 and Jahnhen-Dechent & Ketteler, 2012).

Magnesium toxicity can be caused by large doses of magnesium-containing laxatives and antacids, typically providing more than 5,000 mg/day magnesium. Clinical manifestations of magnesium toxicity are usually seen when serum magnesium concentrations exceeds 1.74-2.61 mmol/L and include hypotension, nausea, vomiting, facial flushing, urinary retention, ileus, depression, and lethargy. Further more, these clinical manifestations may progress to more serious ones including muscle weakness, difficult breathing, extreme hypotension, arrhythmias and cardiac arrest (Wester, 1987; Geiger & Wanner, 2012; Jahnhen-Dechent & Ketteler, 2012).