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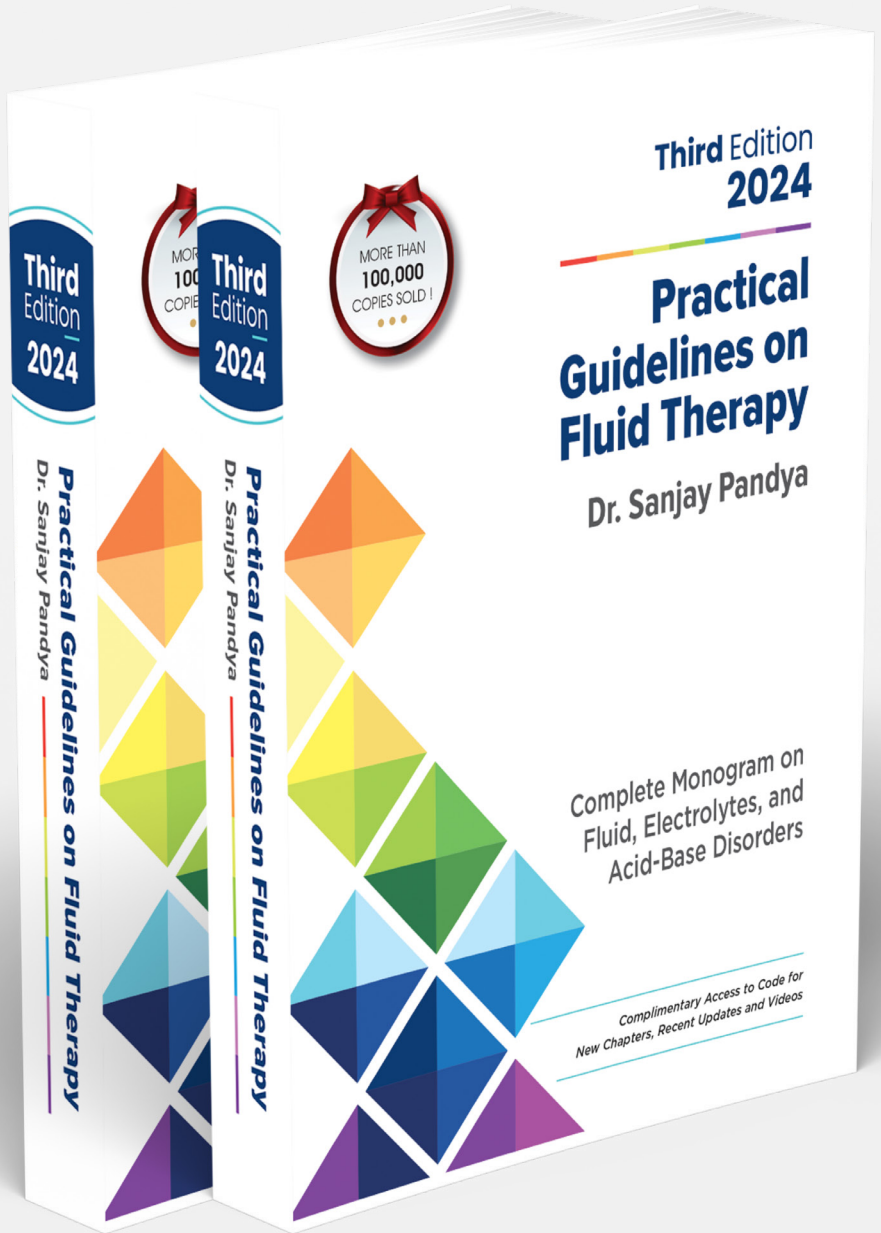
Chapter 12:

Magnesium Sulfate



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12 Magnesium Sulfate

Injection Magnesium sulfate ($MgSO_4$) is the most common parenterally used magnesium salt in clinical practice.

COMPOSITION

Injection Magnesium sulfate is available in different concentrations.

Inj. 50% Magnesium Sulfate

Each ml contains:
Magnesium Sulfate USP 500 mg
4.06 mEq or 2.03 mmol Magnesium ions
Osmolarity 4060 mOsm/L

50% Magnesium Sulfate per ampoule: 1 gm/2 ml and 5 gm/10 ml

Inj. 20% Magnesium Sulfate

Magnesium Sulfate USP 2 gm/10 ml

Inj. 10% Magnesium Sulfate

Magnesium Sulfate USP 1 gm/10 ml

Conversion relationships: Magnesium Sulfate 1 gm = 4 mmol mg = 8 mEq mg

PHARMACOLOGICAL BASIS

Magnesium is the second most common intracellular cation. It is an essential co-factor in many biochemical reactions and plays a vital role in nerve transmission, neurochemical transmission, cardiac excitability, muscular excitability, and vasomotor tone. It also affects the regulation of calcium and potassium.

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A. Preeclampsia and eclampsia

Magnesium sulfate is an effective treatment for eclampsia, but the exact mechanism of action remains unclear and is suggested to be multi-factorial (works through both vascular and neurological mechanisms) [1]. Different proposed mechanisms are:

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