QUANTITATIVE DETERMINATION OF MAGNESIUM IVD

ORDER INFORMATION

REF: MAG 25 Cont. 25x1 ml

CLINICAL SIGNIFICANCE

Magnesium is the second more abundant intracellular cation of the human body after potassium, being essential in great number of enzymatic and metabolic processes. Is a cofactor of all the enzymatic reactions that involve the ATP and comprises of the membrane that maintains the electrical excitability of the muscular and nervous cells. A low magnesium level is found in malabsorption syndrome, diuretic or aminogluco side therapy, hyperparathyroidism or diabetic acidosis. Elevated concentration of magnesium is found in uremia, chronic renal failure, g lomerulonephritis, Addisons’s disease or intensive anti acid therapy 1,4,5. Clinical diagnosis should not be made on a single test result; it should integrate clinical and other laboratory data.

PRINCIPLE

At alkaline pH magnesium reacts with xylidyl blue and produces a chelating red colored compound. The red increasing or the blue decreasing colors are proportional to magnesium concentration.

REAGENT COMPOSITION

Reagent I : Xylidyl Blue Reagent
Magnesium Standard : 2.5 mg/dl

SAFETY PRECAUTIONS AND WARNINGS

1. This reagent is for in vitro diagnostic use only.
2. Do not pipette by mouth. Avoid contact with skin and clothing. R1/RT: Corrosive (C): R35: Causes severe burns.

SAMPLE COLLECTION AND PRESERVATION

It is recommended to use serum. When using Plasma avoid EDTA which may increase results. Urine should be previously taken to an acid pH value (pH 3-4) by adding some drops of HCl. Then dilute 1:5 with distilled water.

REAGENT PREPARATION AND STORAGE

All reagents are ready to use.

REAGENT STABILITY

Stable upto expiry date at Room Temperature.

LINEARITY

The method is linear to a concentration of 5.0 mg/dl

AUTOMATED PARAMETERS

Wavelength 520 nm
Cuvette 1 cm light path
Temperature Room Temperature
Measurement Against r
Sample/Reagent 1:100
Reaction Type End Point
Incubation 5mins.
Low Normal 1.9 mg/dl
High Normal 2.5 mg/dl
Linearity 5.0 mg/dl

ASSAY PROCEDURE

PIPETTE INTO TEST TUBES

<table>
<thead>
<tr>
<th></th>
<th>BLANK</th>
<th>STD</th>
<th>SAMPLE</th>
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</thead>
<tbody>
<tr>
<td>DI WATER</td>
<td>10μl</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STANDARD</td>
<td>-</td>
<td>10μl</td>
<td>-</td>
</tr>
<tr>
<td>SAMPLE</td>
<td>-</td>
<td>-</td>
<td>10μl</td>
</tr>
<tr>
<td>REAGENT</td>
<td>1000μl</td>
<td>1000μl</td>
<td>1000μl</td>
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</tbody>
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Mix well and incubate for 5 minutes at room temperature. Measure final absorbance of the sample (Ac) and standard (As) against the reagent blank.

CALCULATION

Ac / As x Conc. Std. = mg / dl Serum
Ac / As x Conc. Std. x 5 = mg / dl Urine

The standard concentration is mentioned on the vial. This method is linear to 5 mg/dl.

QUALITY CONTROL

Accutestrol N - H

NOTES

Metallic ions and proteins do not interfere with the assay. Use disposable plasticware to run tests.

REFERENCE INTERVAL

<table>
<thead>
<tr>
<th></th>
<th>SERUM</th>
<th>CSF</th>
<th>URINE</th>
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<tbody>
<tr>
<td></td>
<td>1.9 - 2.5 mg/dl</td>
<td>2.4 - 3.1 mg/dl</td>
<td>75 - 125 mg/24h</td>
</tr>
<tr>
<td></td>
<td>1.6 - 2.0 mEq/l</td>
<td>1.9 - 2.5 mEq/l</td>
<td>60-100</td>
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BIBLIOGRAPHY