TEST: Vitamin D, 25-OH, Total level

PRINCIPLE:
Vitamin D is a fat soluble hormone that plays important role in regulation of calcium and phosphorus homeostasis imperative for bone health. Moreover, more evidence is accumulating in support of Vitamin D’s role in cardiovascular diseases, cancers, autoimmune diseases\(^1\). Vitamin D obtained from sun exposure (D3 type), food (D3 or D2 type), and supplements (D3 or D2 types) is converted in liver into Vitamin D, 25-OH. Vitamin D, 25-OH is the major circulating form of vitamin D and the precursor of the active form (Vitamin D, 1,25-(OH)\(_2\)). Because Vitamin D, 25-OH is the most stable vitamin D metabolite in human serum with half-life of approximately 3 weeks, its measurements are important for assessing vitamin D status in patients. Test result may be used in conjunction with other clinical or laboratory data to assist the clinician in patient management.

Vitamin D, 25-OH, Total level test is designed to recognize and measure both types of Vitamin D, 25-OH (D2 and D3) equally. Total Vitamin D test is a competitive immunoassay performed using the VITROS 25-OH Vitamin D Total Reagent Pack and the VITROS ECI Immunodiagnostic System\(^2\). The Vitamin D, 25-OH in the sample competes with the horseradish peroxidase (HRP) labeled Vitamin D, 25-OH conjugate for monoclonal anti-Vitamin D bound to the reaction wells. The HRP in the bound conjugate catalyzes the oxidation of the luminol derivative, producing light that is read by the system. The amount of HPR conjugate bound is indirectly proportional to the concentration of Vitamin D, 25-OH present in serum sample\(^3\).

SPECIMEN REQUIREMENTS:
2ml serum collected in a red top tube with no additive or in a serum separator tube (gel barrier). Serum should be separated from the clot as soon as possible to avoid hemolysis. Store samples tightly stopped at room temperature (15 to 30°C) no longer than 72 hours. If the assay will not be completed within 72 hours refrigerate the samples at 2 to 8°C. If the assay will not be completed within 7 days, freeze at -20°C or colder. Frozen samples can be stored up to one year. Avoid assaying lipemic or hemolyzed samples.

METHOD:
Enhanced chemiluminescence, competitive immunoassay.

REFERENCES:

<table>
<thead>
<tr>
<th>Deficient</th>
<th>&lt;20 ng/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient</td>
<td>20 - &lt;30 ng/ml</td>
</tr>
<tr>
<td>Sufficient</td>
<td>30 - 100 ng/ml</td>
</tr>
<tr>
<td>Upper Safety Limit</td>
<td>&gt;100 ng/ml</td>
</tr>
</tbody>
</table>

TURNAROUND TIME: 3 days