

NEW PTH ASSAYS—DO THEY REALLY MAKE A DIAGNOSTIC DIFFERENCE?

Victor Rozas, Great Lakes Renal Network, Alma, MI, USA.

Because the intact PTH assay does not measure 1-84 PTH specifically, but cross-reacts with 7-84 PTH, new PTH assays and parameters have been proposed. Two specific 1-84 PTH assays are now available: the Scantibodies CAP assay and the Nichols Bio-Intact PTH assay. In addition, bone histology studies in 2 countries demonstrated the 1-84 PTH/7-84 PTH ratio to be superior for the prediction of bone turnover status. Therefore, we tested the plasma of 39 of our patients receiving routine maintenance hemodialysis for Bio-Intact PTH, Total PTH, CAP, and CAP/CIP ratio to determine if there was any diagnostic difference between these parameters. All of the single assays (Bio-Intact PTH, Total PTH, and CAP) yielded approximately the same clinical diagnosis of no adynamic bone disease, 6-7 normal bone status, and 13-14 high bone turnover status. However, the CAP/CIP ratio indicated that 9 patients had adynamic bone disease. This study indicates that there is no significant diagnostic difference between the Bio-Intact PTH, Intact PTH, and CAP assays. However, there are diagnostic differences between those assays and the CAP/CIP ratio. Thus, including the CAP/CIP ratio in the diagnostic process may lead to more accurate identification of a potentially unidentified and serious condition of adynamic bone disease.

Patients by No.	Ca	PO ₄	Ca x PO ₄	Therapy	Total iPTH (150-300)	Diagnosis	Bio-Intact PTH (80-150)	Diagnosis	CAP (90-170)	Diagnosis	Ratio (≤1.4=Low)	Diagnosis	CIP
1	9.5	3.4	32.3	1 µgm	342.1	H	176.3	H	208.3	H	1.6		133.8
2	8.6	3.9	33.5	+ 2 µcg	328.4	H	190.4	H	207.6	H	1.7		120.7
3	9.9	8.5	84.2	Hold	188.1		104.5		79.5	L	0.7	L	108.6
4	8.4	3.5	29.4	1 µgm	251.2	N	137.2	N	165.6	N	1.9		85.6
5	9.3	6.9	64.2	8 µmg on hold	665.6	H	527.4	H	567.7	H	5.8		97.9
6	9	4.4	39.6	1 µgm	297.4		143.1		166.3		1.3	L	131.1
7	7	6.9	48.3	1 µgm	288.8		194		157.0		1.2	L	131.8
8	8.6	7.2	61.9	6 µgm on hold	334.9	H	174.8	H	200.6	H	1.5		134.3
9	9.7	6.6	64	6 µgm on hold	360.0	H	205.7	H	227.9	H	1.7		132.1
10	8.8	5.3	46.6	+4 µgm	294.5		179.5		160.1		1.2	L	134.4
11	8.7	5.2	45.2	1 µgm	270.7	N	145	N	169.4	N	1.7		101.3
12	9.7	6.7	65	8 µgm on hold	752.5	H	584.4	H	527.1	H	2.3		225.4
13	10	5.9	59	6 µgm	637.8		378.5		365.3		1.3	L	272.5
14	9.2	4	36.8	2 µgm	185.7	N	121.8	N	110.9	N	1.5		74.8
15	9.4	6.2	58.3	4 µgm	357.3	H	196.2	H	215.1	H	1.5		142.1
16	9.4	5.1	47.9	- 1 µgm	143.6		85.9		83.8	L	1.4	L	59.8
17	9.2	5.5	50.6	6 µgm	241.8		134.7		133.8		1.2	L	108.0
18	8.1	4	32.4	+6 µgm	289.6	N	217.7	H	203.6	H	2.4		86
19	9	2.4	21.6	2 µgm	177.9	N	107	N	121.5	N	2.2		56.4
20	10.4	9.4	97.8	4 µgm on hold	562.9	H	444.5	H	386.7	H	2.2		176.3
21	8.4	5.6	47	1 µgm	279.3	N	155.5	H	173.7	H	1.6		105.6
22	8.4	5.2	43.7	-2 µgm	198.9		96.6		110.9		1.3	L	88
23	9.1	6.3	57.3	4 µgm	422.8	H	241.8	H	286.8	H	2.1		136
24	9.8	8.1	79.4	4 µgm on hold	539.7		284.2		308.4		1.3	L	231.3
25	9.4	3.2	30.1	2 µgm	415.1	H	242.7	H	272.7	H	1.9		142.4
26	9.6	3.4	32.6	+6 µgm	427.2	H	329	H	325.3	H	3.2		101.9
27	8.6	3.7	31.8	1 µgm	151.9	N	136	N	96	N	1.7		55.8
28	9.8	7.7	75.5	+2 µgm hold	590.7	H	332.7	H	354.6	H	1.5		236.1
29	9.2	4.4	40.5	1 µgm	228.7	H	141.9	N	163.0	N	2.5		65.7
					Total Low	0	Total Low	0	Total Low	2	Total Low	9	
					Total Normal	7	Total Normal	6	Total Normal	6			
					Total High	13	Total High	14	Total High	14			

H = High Bone Turnover Disease
 N = Normal Bone Turnover Disease
 L = Adynamic Low Bone Turnover Disease

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