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### Title

PHOSPHATE BINDER USE IN HEMODIALYSIS SUBJECTS WITH CORONARY ARTERY CALCIUM SCORES ABOVE 100

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IMAGING AND DIAGNOSTIC TESTING

**PHOSPHATE BINDER USE IN HEMODIALYSIS SUBJECTS WITH CORONARY ARTERY CALCIUM SCORES ABOVE 100**

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

Tuesday, April 05, 2011, 9:30 a.m.-10:45 a.m.

Session Title: Advances in Noncoronary Applications of Cardiac CT  
Abstract Category: 37. CT Coronary Calcium and Noncoronary CT Applications  
Session-Poster Board Number: 1170-215

Authors: *Ronney S. Shantouf, Naser Ahmadi, Sadiyah Iqbal, Kamyar Kalantar-Zadeh, Ferdinand Flores, Nazanin Noori, Jennie Jing, Csaba P. Kovessdy, Matthew J. Budoff, LABiomed at Harbor-UCLA, Torrance, CA*

**Background:** Increased vascular calcification delineates a higher mortality risk in end stage renal disease subjects. Traditional and nontraditional risk factors contribute to vascular calcification among maintenance hemodialysis (MHD) patients. Non-calcium based phosphate binders may have a protective role in MHD subjects.

**Methods:** We examined 6-year (10/2001-9/2007) survival of 166 MHD patients, aged 53±13 years that underwent Coronary Artery Calcium (CAC) scoring. High risk MHD subjects were categorized as scores of CAC 100+. The effect of calcium based phosphate binders (CBPB) alone versus sevelamer (a non-calcium based phosphate binder) alone on all-cause mortality was further determined using stepwise Cox regression analysis in patients with CAC 100+.

**Results:** The Hazard Ratio (HR) of death in MHD subjects with sevelamer decreased from unadjusted model 0.63 [CI 0.26-0.90, p=0.03] to 0.47 [CI 0.19-0.87, p=0.01] as compared to CBPB when adjusted for demographics, co-morbidity, lipids and other cardiovascular risk, surrogates of bone disease, nutritional and inflammatory markers, dialysis dose, and CAC.

**Conclusion:** Sevelamer demonstrated a protective effect compared to calcium based phosphate binders in the high risk MHD subjects with CAC 100+ suggesting an anti-atherogenic and anti-inflammatory effect.

Table 5 HR across CBPB versus sevelamer subjects with CAC 100+ by means of stepwise Cox proportional hazard regression analysis models (n=69)

	CBPB	Sevelamer
Unadjusted*	1	0.63 (0.26-0.90) p=0.03
Case-Mix†	1	0.61 (0.28-0.91) p=0.03
+ Kt/V, albumin, Ca, Phos, CaxP, minerals, iPTH	1	0.59 (0.23-0.90) p=0.03
+LDL, IL-6	1	0.58 (0.21-0.89) p=0.02
+ CAC	1	0.47 (0.19-0.87) p=0.01

95% confidence intervals expressed in parenthesis

\*Unadjusted: Sevelamer versus CBPB

†Case-Mix: Sevelamer versus CBPB, age, gender, vintage, diabetes mellitus, hypertension, statin therapy, smoking, family history of premature CVD, Ethnicity (Hispanic vs. other), Race (Black vs. other), BMI

BMI = body mass index; Ca = calcium; CAC = log coronary artery calcium; CaxP = calcium-phosphorus product; CBPB = calcium based phosphate binder; CVD = cardiovascular disease; HR = Hazard Ratio; IL-6 = interleukin 6; iPTH = intact parathyroid hormone; LDL = low dense lipoprotein; Phos = phosphorus