BONE MINERAL DENSITY (BMD), BONE LOSS AND CORONARY CALCIFICATION
IN OLDER MEN

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Submitted to the Graduate Faculty of

the Graduate School of Public Health in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

University of Pittsburgh

2002
UNIVERSITY OF PITTSBURGH
Graduate School of Public Health

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Cardiovascular disease (CVD) and osteoporosis are important public health burdens in older men. Recent epidemiologic studies suggest that osteoporosis and atherosclerosis may be linked. The goals of this study were to determine whether measures of bone strength were related to coronary artery calcification (CAC). To further test the underlying etiologic pathways, we explored 1) the relationship of estrogen and C-reactive protein (CRP) and 2) the genetic contribution of osteoprotegerin (OPG) polymorphisms. A total of 138 Caucasian men aged 51 to 78 years were participated in present study. Hip BMD, CRP and sex steroid hormones were measured, and annualized percent change in BMD was calculated. CAC score was measured by electron beam tomography. Men were genotyped for T-950C and G-1181C polymorphisms in OPG gene. Correlation analysis, analysis of variance (ANOVA), and regression analysis were employed to evaluate the study aims.

The prevalence of CAC increased with age, ranging from median value of 152 at less than 65 years to 788 at 80 years and older. Hip BMD or bone loss at the hip was not correlated with CAC. Neither serum estrogen nor CRP was related to bone loss or coronary calcification. There were no significant differences in BMD across OPG T-
950C or G-1181C genotypes. However, men with T-950C C/C genotype were more likely to lose BMD at the intertrochanter compared with men with T/T or T/C genotypes (p =0.03). Calcaneal BUA significantly differed across G-1181C genotypes; men with C/C genotypes had 25% higher BUA values than men with G/G genotypes. Interestingly, men with C/C genotypes had 0.5SD higher coronary calcification than men with G/G genotypes, which persisted after adjusting for age (p=0.03). There was a significant dose dependent effect across genotypes (p=0.01).

In conclusion, we could not find any relationship between measures of bone strength and coronary calcification in older men. However, our findings suggest that genetic variations in OPG may be of importance to examine its effect on the development of coronary calcification in older men.
ACKNOWLEDGEMENTS

First of all, I would like to give endless thanks to the Lord. To complete this enormous project, I had to be trained, tamed and loved. Also, I would like to deeply appreciate my mentor and advisor, Dr. Jane Cauley for giving me the wonderful opportunities to learn the real-world researches, and guiding me to find my way as an Epidemiologist. I would like to thank my doctoral committee members, Drs. Anne Newman, Robert Ferrell, and Stephen Wisniewski. Thank you so much for letting me look at many aspects of life and researches through you. I must acknowledge our study participants for their efforts in completing this study with their time, and participations. Most of all, thank you so much for your trust and for letting me drive you all the way from Monessen, PA to Pittsburgh! I hope my thanks are enough to acknowledge our Monessen Clinic staffs for their help and cheering.

To all my friends and colleagues, I owe you millions of thanks for your love and support even for my ups and downs. My colleagues in my office, Dr. Joseph Zmuda, many friends including Junghwa Ko, Jeanne Zborowski, Kathleen McHugh-Pemu, Karen Remsberg, Karen Southwick, and Rana Ezzeddine. I would like to thank many friends at the University of Pittsburgh and Department of Epidemiology as well. Finally, to my husband, my mom, and parents-in-law, I am very grateful for your love, patience, and supports for my endless endeavor. Thank you so much for praying and believing in me. Most importantly, to my husband, he was always there to look after, cheer up, guide, and love me during all these hard years. I am so lucky to have you!
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