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AGREEMENT OF INDICATORS FOR ANTHROPOMETRIC BODY COMPOSITION AND DUAL ENERGY X-RAY ABSORPTIOMETRY (DXA) IN OVERALL AND CENTRAL OBESITY AMONG CHINESE ELDERS

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Objectives: The purpose of the study was to determine agreement of indicators for anthropometric body composition and dual energy X-ray absorptiometry (DXA) in measuring overall and central obesity among Chinese elders

Methods: A community-based cross-sectional survey of elders was conducted in 2009 in Taichung, Taiwan. A total of 413 women and 467 men aged 65 years and over with complete anthropometric evaluations and DXA examination were enrolled in this study. Weight, waist, body mass index (BMI), and waist-height ratio (WHtR) were measured. Total body fat mass percent (TFM%) and android to gynoid fat (A/G) ratio were determined by DXA. Elders in the highest sex-specific quartile of TFM% and A/G ratio were defined as overall and central obesity, respectively. Pearson correlation coefficients, odds ratios (OR) with 95% confidence intervals (CI), and receiver operating characteristics curves were used to evaluate the agreement of anthropometric body composition indicators with DXA.

Results: All anthropometric indicators had strong correlation with TFM% and A/G ratio in all gender and age groups. Among all anthropometric indicators, BMI had the greatest magnitude of strength of association with overall obesity in all sex and age groups (ORs per 1-SD increase were 7.55 and 7.31 in females aged ≦75 years and >75 years, respectively; 6.74 and 6.25 in males aged ≦75 years and >75 years, respectively.) whereas waist and WHtR were the two measures with greatest association with central obesity in all sex and age groups (ORs per 1-SD increase for waist and WHtR were 3.01 and 2.86 in females aged ≦75 years; 1.92 and 1.77 in females aged >75 years; 2.26 and 2.36 in males aged ≦75 years; and 2.41 and 2.24 in males aged >75 years). In women aged ≦75 years, AUC value of overall obesity for BMI was significantly higher than those for waist and WHtR ($p<0.001$). On the contrary, In women and men aged ≦75 years, AUC value of central obesity for BMI was significantly lower than those for waist and WHtR (both $p<0.01$).

Conclusion: Our study demonstrates that BMI is a better overall obesity indicator in women whereas waist and WHtR are better central obesity indicators in both genders in a Taiwanese population aged 75 years and under. Our study findings have important implication on screening of obesity in community settings for elders.

Keywords: body mass index, waist-height ratio, dual energy X-ray absorptiometry

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HIGHER LEVEL OF GLYCATED HEMOGLOBIN LEVEL IS ASSOCIATED WITH AN INCREASED RISK OF HIP FRACTURE IN ELDERS WITH TYPE 2 DIABETES

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Background: Hip fracture is associated with considerable morbidity and long-term mortality, posing a major burden on health care. Diabetes is reported to be a risk factor of osteoporosis, an important risk factor of hip fracture. However, epidemiological studies on the risk of hip fracture among type 2 diabetic patients were limited. The aim of the study was to explore the association between hemoglobin A1c (HbA1c) and the risk of hip fracture in elders with type 2 diabetes.

Methods: We conducted a retrospective cohort study on 20,590 type 2 diabetes elders who participated in the National Diabetes Case Management Program in Taiwan. HbA1c at baseline and hip fracture events over the 7.75 years were analyzed.

Results: The average follow-up was 7.75 years with a total of 1,357 incident cases of hip fracture. The incidence rates of hip fracture were 7.98, 6.69, 7.90, 8.69, 10.45, and 11.00 per 1000 person-years in groups of the <6%, 6-7%, 7%-8%, 8%-9%, 9%-10%, and ≧10% of baseline HbA1c, respectively. After multivariate adjustment, the risk of hip fracture was elevated among patients with HbA1c levels of <6, 9-10, and ≥10.0 % compared with patients with HbA1c levels 6-7 % [hazard ratio (HR): 1.28, 95% confidence interval (CI): 1.03–1.58; 1.35, 1.10-1.64, and 1.38, 1.14–1.68, respectively]. Significant linear trends across different HbA1c levels were observed ($p<0.01$).

Conclusions: Patients categorized as HbA1c greater than 9.0% or less than 6% exhibited an increased risk of hip fracture, confirming a J-shaped relationship. Future studies should be conducted to determine how to meet the recommended HbA1c targets that could reduce a risk of hip fracture without posing risks in patients with HbA1c level <6%.

Key words: hemoglobin, hip fracture