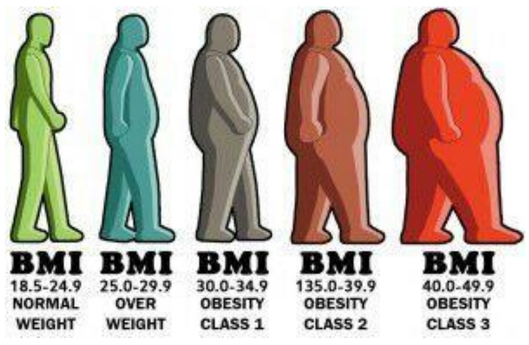

Body Mass Index in an Australian population with Chronic Kidney Disease.

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Background

- Although higher body mass index [BMI] is a health risk in the general population, the relationship of BMI to chronic kidney disease [CKD] is unclear.

Aim

- To compare BMI in an Australian population with CKD in nephrology care with BMI of participants in the AusDiab study[1], which was intended to be a representative sample of the Australian population.
- To evaluate the association of BMI with demographic and clinical features among this population of people with CKD.

Methods

- We conducted a cross-sectional study of BMI in CKD patients from three major renal specialty sites who were enrolled in the CKD.QLD Registry between May 2011 and July 2015.
- BMI was categorized according to the World Health Organisation [WHO] guidelines.
- The prevalence of obesity was described, by site, and in comparison with the AusDiab study.
- Associations of BMI with participant demographic and clinical variables were analysed using adjusted proportions and linear regression.

Results

- Among the 3,382 patients in this study [median age 68, IQR 56–76 years], 50.8% had BMI ≥30, the WHO threshold for obesity. These compare with a median BMI 25.8 kg/m^2 and BMI ≥30 of 20.8% in the AusDiab cohort [**Figure 1A**]. The rate of obesity in the CKD patients is 2.5 times that of the AusDiab cohort [Mantel-Haenszel chi-squared test].
- Within the individual sites, the proportions of CKD patients with BMI ≥30 were 45.5%, 52.7% and 54.1% at the Royal Brisbane and Women's Hospital, Toowoomba Hospital and Logan Hospital, respectively [p=0.002] [**Figure 1B**].
- After adjustment for site, factors which significantly correlated with higher BMI included lower age [<70 years], lower socioeconomic status and indigenicity, while ages ≥70 years and CKD stage 5 were associated with lower BMI.
- After adjustment for all these factors, the proportions of CKD patients who had diabetes mellitus [**Figure 1C**], diabetic nephropathy [**Figure 1D**], gout [**Figure 1E**] and obstructive sleep apnoea [**Figure 1F**] were all powerfully associated with higher BMI [p<0.001]. Hypertension was less dramatically but still significantly associated with higher BMI.
- Of note, the proportion of CKD patients with cardiovascular disease was not associated with higher BMI.

Conclusions

Among the CKD population, lower socioeconomic position and indigenicity are associated with higher BMIs.

Patients with CKD in public renal specialty practices in Queensland are 2.5 times more likely to have BMIs above the obesity threshold than the general Australian population;

➢ Hence obesity probably predisposes to CKD.

This infers that rates of CKD would be lower if rates of population-based obesity were contained.

Among patients with CKD, the proportions with serious comorbidities are strongly associated with higher BMIs.

This infers that rates of these serious comorbidities in CKD patients would be lower if rates of obesity were contained.

➢ These have major implications for CKD prevention and modification.

Figure 1A

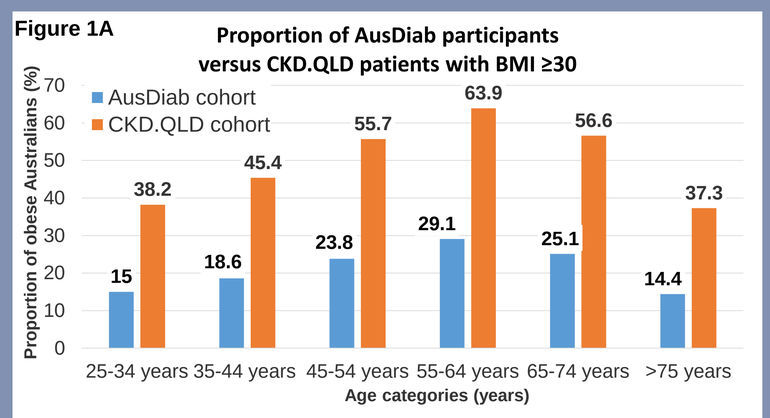


Figure 1B

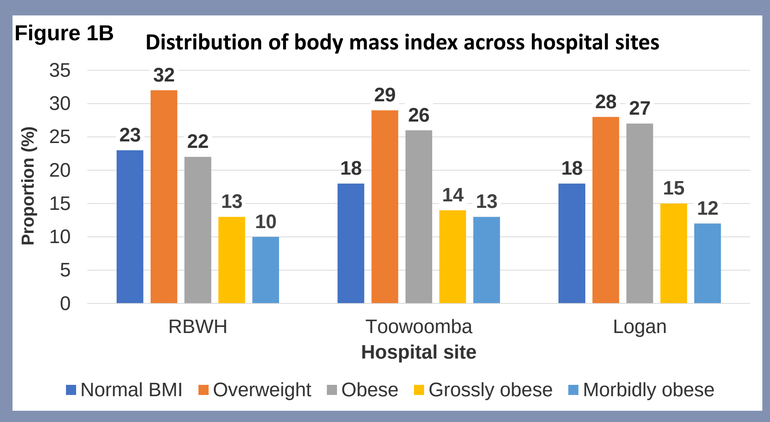


Figure 1C

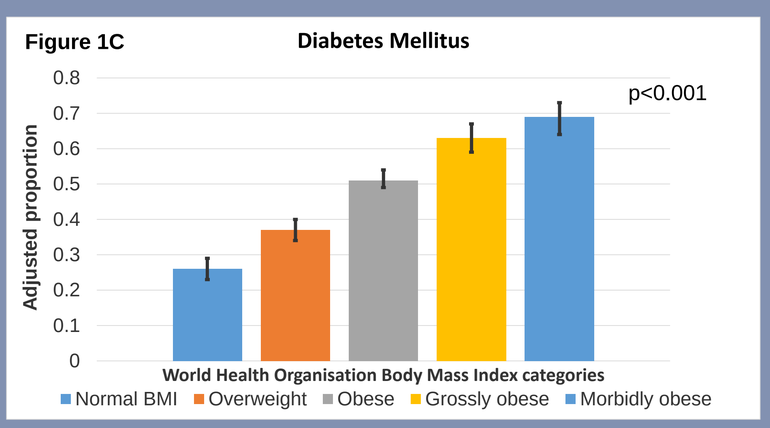


Figure 1D

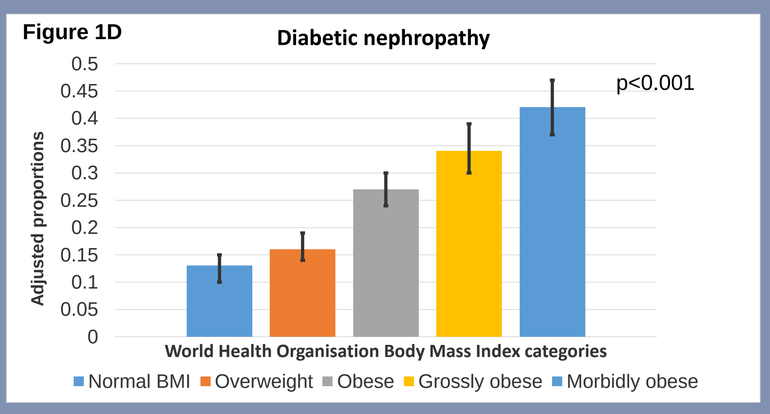


Figure 1E

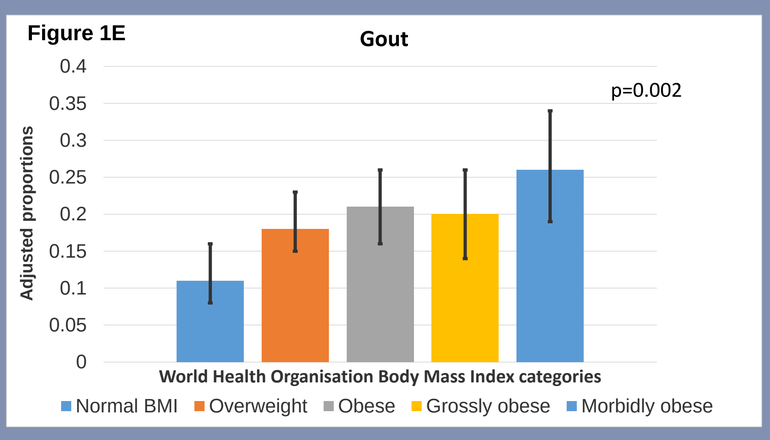
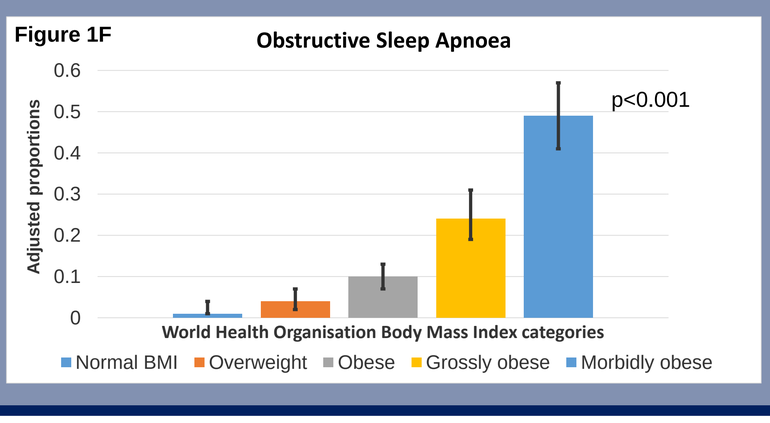


Figure 1F



Reference:

1. Dunstan DW, Zimmet PZ, Wilborn TA et al. The Australian Diabetes, Obesity and Lifestyle Study (AusDiab) – methods and response rates. Diabetes Res Clin Pract 2002; 57: 119-29.

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