PO2329
Racial and Ethnic Predictors of Hyperkalemia Recurrence
Elani Streia,1, 2 Jui-Ting Hsiung,1, 2 Abiy Agiro,1 Yasmin G. Brahambhatt,3 Kerry Cooper,4 Kamyar Kalantar-Zadeh.1, 2 VA Long Beach Healthcare System, Long Beach, CA; 3University of California Irvine, Irvine, CA; 4AstraZeneca PLC, Cambridge, United Kingdom.
Background: Understanding predictors of recurrent HK may help healthcare providers provide a more individualized approach to HK management. This study aims to explore if race and ethnicity are independently associated with recurrent HK.
Methods: The cohort consisted of 2,457,498 US veterans who had a HK event (sK >5.0 mEq/L) between 2004 and 2018. We evaluated possible demographic predictors of 1-year HK recurrence using Fine and Gray competing risk regression model, which allowed for non-null death as a second risk. We defined HK recurrence as the third or later potassium measurement after the index HK event, and patients need to have at least one or more normal potassium measurements (≤5.0 mEq/L) between the HK events.
Results: Cohort mean age was 63±13yrs, mean index potassium level was 5.3±0.29 mEq/L, and median (IQR) index eGFR was 68 (49, 86) mL/min/1.73m²; 96% were male, 13% were Blacks, and 6% were Hispanic. Overall, 17% of patients had a HK recurrence within 1 year after index HK occurrence. Black patients had a 19% higher risk of 1-year HK recurrence (hazard ratio [HR] [95% CI]: 1.19 [1.18, 1.20]) compared to White patients. Hispanic patients had a 34% higher risk of 1-year HK recurrence (hazard ratio [HR] [95% CI]: 1.43 [1.35, 1.51]) compared to non-Hispanic patients. Other predictors for high risk of 1-year HK recurrence include older age (15% higher for each 15 year increment of age) and male (22% higher compared to female) (Table).
Conclusions: Being Hispanic, Black, male, or older age, was associated with a higher risk of HK recurrence within 1 year after index HK event. Further studies are needed to understand the reasons for these disparities and their potential associations with clinical management of HK.
Funding: Commercial Support - AstraZeneca

PO2330
Ethnic Differences for Incident CKD in Asians
Cynthia C. Lim,1 Feng He,2 Jiali Li,1 Yih-Chung Tham,1 Chieh-suai Tan,1 Ching-Yu Cheng,2 Tien Yin Cheng,2 Charumathi Sabanayagam,1, 2 Singapore General Hospital, Singapore, Singapore; 2Singapore Eye Research Institute, Singapore, Singapore; 3Duke-NUS Medical School, Singapore, Singapore.
Background: Chronic kidney disease (CKD) is a growing health burden in Asia but there is sparse data on incident CKD among different ethnic groups. We aimed to describe the incidence and risk factors associated with incident CKD in the major ethnic groups in Asia.
Methods: Prospective cohort study of 5580 general population participants age 40-80 years (2234 Chinese, 1474 Malays and 1872 Indians) in Singapore who completed both baseline and 6-year follow up visits. Incident CKD was defined as an estimated glomerular filtration rate ≤60 ml/min/1.73 m² in those free of CKD at baseline.
Results: The 6-year incidence of CKD was highest among Malays (10.9%), followed by Chinese (6.1%) and Indians (5.8%). Logistic regression showed that older age, diabetes, higher systolic blood pressure and lower eGFR were independently associated with incident CKD in all 3 ethnic groups, while hypertension and cardiovascular disease were independently associated with incident CKD only in Malays. The same factors were identified by machine learning approaches gradient boosted machine (GBM) and random forest (RF) to be the most important for incident CKD (Figure 1). Adjustment for clinical and socioeconomic factors reduced the excess risk in Malays by 60% compared to Chinese but only 13% compared to Indians.
Conclusions: Incidence of CKD is high among the main Asian ethnic groups in Singapore, ranging between 6-10% over 6 years. Differences between ethnic groups were partially explained by clinical and socioeconomic factors. These findings may inform policy development and resource allocation to target risks factors to reduce incident CKD.
Funding: Government Support - Non-U.S.

PO2331
Muscle Mass and Estimates of Renal Function: A Longitudinal Cohort Study
Dion Groothof1, Adrian Post,1 Harmeke A. Polinder-Bos,1 Nicole Erler,1 Jose L. Flores-Guerrero,1 Jenny E. Kootstra-Ros,1 Robert Pol,1 Martin H. De Borst,1 Ron T. Gansevoort,1 Reinold O. Gans,1 Daan Kremers,1 Lynnae M. Kieneker,1 Arjola Bano,1 Taulant Muka,1 Oscar Franco,1 Stephan J. Bakker,1 Universitair Medisch Centrum Groningen, Groningen, Netherlands; 2Universiteit Bern Institut fur Sozial- und Praventivmedizin, Bern, Switzerland; 3Erasmus MC, Rotterdam, Netherlands.
Background: Current guidelines suggest using creatinine-based estimated glomerular filtration rate (eGFR) as measurement of renal function, but muscle mass as key determinant of creatinine after renal function may lead to imprecise estimates. We explored effects of 24-hour height-indexed creatinine excretion rate (CER index) – as accurate marker of muscle mass – on eGFR, and muscle mass-independent cystatin C-based eGFR (eGFRcys) and predicted probabilities of misclassification given age, sex, and CER index.
Methods: We included 8,076 community-dwelling individuals enrolled in the PREVEND study. Misclassification was defined as eGFRcys ≤60 ml/min/1.73 m² when eGFR <60 ml/min/1.73 m² and eGFRcys was >60 ml/min/1.73 m². Cross-sectional associations were quantified with quantile regression and logistic regression and longitudinal associations with linear mixed-effects models.
Results: In a simulated 70-year-old male with low muscle mass (CER index of 4 ml/min/24 hour/m²), predicted baseline eGFRcys and eGFR were 87.5 and 60.5 (difference: 27.0) ml/min/1.73 m², respectively (Figure). Percentages (95% CI) of misclassification in males and females older than 60 years with low muscle mass were 18.5% (14.8%-22.1%) and 15.2% (11.6% to 18.8%), respectively. Over time, for that same 70-year-old male, eGFR and eGFRcys disagreed with 2.3, 4.9, 7.7, and 10.7 ml/min/1.73 m² at baseline, 5 years, 10 years, and 15 years of follow-up, respectively.
Conclusions: Low muscle mass may cause considerable overestimation of single measurements of eGFRcys. Muscle wasting may cause spuriously overestimation of repeatedly measured eGFR. Implementing muscle mass-independent markers for estimating renal function, like cystatin C as superior alternative to creatinine, is crucial to accurately assess renal function in settings of low muscle mass or muscle wasting.

Figure 1. Variables associated with incident CKD in each ethnic group, analysed by (A) Logistic Regression (LR), (B) Gradient Boosted Machine (GBM) and (C) Random Forest (RF).