Introduction: Female sex has an inconsistent risk for ischemic stroke in patients with atrial fibrillation (AF), we hypothesize that the risk of ischemic stroke among females as compared to males varies with age.

Methods: Data were retrieved from Taiwan National Health Insurance Research Database during 2001-2013 for patients with newly diagnosed AF. Patients with missing information, age <20 years, history of valvular heart disease and surgery, rheumatic heart disease, hyperthyroidism, anticoagulation and/or antiplatelet therapy use were excluded. Propensity score matching (PSM) was performed between the age groups and male and female sex groups. Primary outcome was defined as ischemic stroke at follow-up.

Result: After exclusion criteria, 87,369 male and 71,853 female were eligible for analysis (age 73.1±14.4). After 1:1 PSM there were 59,745 male (age 73.5±13.7) and 59,745 female (age 73.5±13.9). Using CHA2DS2-VASc=1, female sex showed 0.45 incidence density. Separating into age groups, the risk of ischemic stroke varied in females as compared to males according to age, from lower risk in age ≤55 years (HR=0.75, 95% CI=0.62-0.90) and age 56-65 years (HR=0.87, 95% CI=0.78-0.98), to neutral in age 66-75 years (HR=1.01, 95% CI=0.94-1.08), and increased risk in age >75 years (HR=1.13, 95% CI=1.08-1.18).

Conclusion: This female/male ischemic risk ratio is variable according to age. Only women >75 years are at higher risk while women <65 have less risk as compared to male counterparts. The data challenges to “sex category” component of the CHA2DS2-VASc score, used to decide anticoagulation in AF patients.