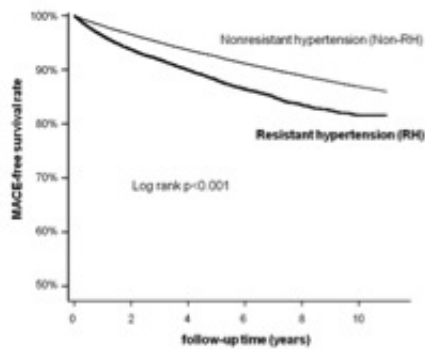


# Resistant hypertension increases stroke risk by 35 percent in women and 20 percent in elderly Taiwanese

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Major adverse cardiovascular events (MACE)-free survival rate between patients with resistant hypertension and non-resistant hypertension. Credit: Dr. Wang

Resistant hypertension increases the risk of stroke by 35% in women and 20% in elderly Taiwanese patients, according to research presented at ESC Congress today by Dr Kuo-Yang Wang from Taiwan. The findings suggest that gender and age should be added to the risk stratification of resistant hypertension to enable more appropriate treatment decisions.

Dr Wang said: "Hypertension is one of the most important risk factors for cardiovascular disease. Patients with hypertension that does not respond to conventional drug treatments, called resistant hypertension, are at even higher risk of cardiovascular morbidity and mortality."

He continued: "Little is known about the prognosis of resistant hypertension in the Asian population. Our study compared the risk of all-cause mortality, acute coronary syndrome, and stroke between patients with resistant hypertension and non-resistant hypertension. We aimed to discover the impact of resistant hypertension on Taiwanese patients, and to ascertain whether patient characteristics influence the association between resistant hypertension and adverse outcomes."

Patients with hypertension aged 45 years and older were identified from the National Health Insurance Research Database. Medical records of 111,986 patients from 2000 to 2011 were reviewed for this study. Some 16,402 (14.6%) patients had resistant hypertension (defined as continuously concomitant use of 3 or more anti-hypertensive medications, including a diuretic, for 2 years or longer). The risk of major adverse [cardiovascular events](#) (MACE; a composite of all-cause mortality, acute coronary syndrome, and stroke) in patients with resistant hypertension and non-resistant hypertension was analysed.

The researchers found that 11,856 patients experienced MACE in the average 7.1 year follow up period. Patients with resistant hypertension had a 17% increased risk of MACE compared to those with non-resistant hypertension. When the researchers analysed the risk of different types of cardiovascular events separately they found that compared to patients with non-resistant hypertension, patients with resistant hypertension had a 17% increased risk of stroke and a 34% increased risk of ischaemic stroke but no increased risk of all-cause mortality or acute coronary syndrome.

Dr Wang said: "Our study shows that patients with resistant hypertension have higher risks for cardiovascular events than those with non-resistant hypertension. The elevated risks mainly contribute to increasing stroke events, especially ischaemic stroke."

Subgroup analysis showed that resistant hypertension increased the risks of stroke in females by 35% and in elderly patients by 20%. However, no significant influence was noted in young or male patients.

Dr Wang said: "Our finding that resistant hypertension increased the risks of stroke in female and elderly patients, but not in young or male patients, could be because risk factors for cerebral atherosclerosis may differ between genders. Previous studies have shown that hypertension was the most important risk factor for females to develop cerebral atherosclerosis, compared to diabetes and hypercholesterolemia for males."

He added: "While this is the first study to explore the relationship between gender, age, and MACE in patients with resistant hypertension, further research is needed to confirm this relationship and to identify the exact mechanisms involved."

Dr Wang concluded: "The clinical diagnosis of resistant hypertension should be combined with patient gender and age to provide a more accurate prediction of the risk of [stroke](#). Clinicians can then target treatments at [patients](#) with the highest risk."

Provided by European Society of Cardiology

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