SEX AND AGE-RELATED DIFFERENCES IN CARDIOVASCULAR RISK FACTORS, STROKE ETIOLOGY AND OUTCOMES AMONG STROKE PATIENTS AGED 18-55 YEARS IN SWITZERLAND

Thomas Schneider¹, Tolga Dittrich¹, Mira Katan², Marcel Arnold³, Emmanuel Carrera⁴, Timo Kahles⁵, Leo Bonati⁶, Alexander Tarnutzer⁷, Krassen Nedeltchev⁵, Gian Marco De Marchis¹

¹Cantonal Hospital St.Gallen, Department of Neurology, St. Gallen, Switzerland, ²University Hospital Basel, Department of Neurology, Basel, Switzerland, ³Inselspital, Department of Neurology, Bern, Switzerland, ⁴Hôpitaux Universitaires de Genève (HUG), Department of Neurology, Geneva, Switzerland, ⁵Cantonal Hospital Aarau, Department of Neurology, Aarau, Switzerland, ⁶Reha Rheinfelden, Department of Neurology, Rheinfelden, Switzerland, ⁷Kantonsspital Baden AG, Department of Neurology, Baden, Switzerland

Background and aims

- **Background**: Ischemic stroke is a leading cause of premature mortality and disability in young adults. Age and sex-related disparities in occurrence rates, vascular risk factors (VRFs), stroke etiologies, and outcomes remain insufficiently studied.

- **Aim**: Explore age and sex-related disparities in stroke occurrence, VRFs, stroke etiologies, and outcomes among young adults (18-55 years) between 2014 and 2022.

Methods

- **Design**: Retrospective multicenter cohort study using the Swiss Stroke Registry.

- **Participants**: Young (18-55 years) patients with first-ever imaging-confirmed ischemic stroke treated at a Swiss center certified for acute stroke care between 2014 and 2022.

- **Statistical Analysis**: Quasi-Poisson models to investigate sex differences in stroke occurrence rates (calculated per 100,000 person-years), risk factors, etiologies, and functional outcomes.

Results

- Analysis of 3,978 patients revealed a balanced sex distribution until the mid-thirties with a subsequent exponential increase in occurrence rates, particularly in men.

- Annual increase in stroke rates was more pronounced in patients with two or more VRFs and those with a BMI ≥ 25, regardless of sex.

- Males showed a higher prevalence of VRFs such as hyperlipidemia, smoking, and hypertension.

- The etiologies of stroke shifted with age, with stroke due to undetermined etiology, small vessel disease, and large artery atherosclerosis becoming more common in older patients, particularly males.

- Functional outcomes deteriorated with age but remained similar between genders.

Conclusion

- **Key Findings**: This study highlights significant age and sex disparities in ischemic stroke occurrence rates, VRFs prevalence, and etiology distribution among young adults in Switzerland. With increasing age, males were at higher risk than females, particularly those with multiple VRFs or higher BMI.

- **Clinical Implications**: These findings emphasize the importance of early detection and managements of VRFs already in young adults to mitigate future stroke risk in both sexes.