Stroke research: Taking into account gender-specific differences in treatment – Role of inflammation processes examined

Strokes have reached epidemic proportions, with about 600,000 new cases in Europe every year. International experts gathered in Istanbul at the Joint Congress of European Neurology to discuss current findings from stroke research. If women receive the same treatment as men after strokes, they have a worse functional outcome. Lacunar strokes are underestimated and often result in mental deterioration and dementia. Inflammatory processes could play a heretofore underestimated role in the way stroke develops.

Istanbul, 1 June 2014 – “Europe reports from 250 to 280 strokes per 100,000 inhabitants per year, a total of 600,000 new cases. Despite major progress in treatment, this disease of epidemic proportions still poses major challenges, not just in acute treatment, but also in prevention and rehabilitation,” Prof Franz Fazekas from the University Clinic of Neurology, Graz, Austria, explained at the Joint Congress of European Neurology in Istanbul.

Women have more severe strokes

An Austrian study presented at the Congress indicates that women who have an acute stroke or a transient ischaemic attack are treated no differently than men even though they have different requirements. Women are on average seven years older than men at the time of the stroke. According to this study, they had a higher degree of pre-existing disabilities and had more severe strokes. Despite identical acute care and a comparable neurorehabilitation rate, the functional treatment outcome was worse for women but their death rate was lower. Prof Fazekas: “Although further studies should be conducted to illuminate the socioeconomic situation of patients after a stroke, this data indicates that gender-specific treatment approaches could make therapy more successful.” The study is based on data from more than 47,000 individuals who were treated in one of the 35 Austrian stroke units from 2005 to 2012. Nearly half of them (47 per cent) were women.

Acute ischaemic stroke newly defined as “thrombo-inflammatory disease”

An inadequate supply of blood to the brain mainly due to thrombi (blood clots) accounts for 80 to 90 per cent of strokes and the sudden neurological deficiency symptoms associated with them. Prof Guido Stoll from the University Clinic of Würzburg: “The only method that has thus far been proved effective is thrombolysis, i.e. breakdown (lysis) of blood clots by pharmacological means, within 4.5 hours after the stroke. Additional mechanical interventions are indicated if thrombi are larger than eight millimetres and are blocking large blood vessels supplying the brain.” Despite early reperfusion of intracranial arteries blocked by a clot, patients can have a progressive stroke in a process called a reperfusion injury. New insights into the role of inflammatory processes in the genesis of strokes could pave the way to innovative therapeutic approaches to this problem. Prof Stoll elaborated on this idea in Istanbul: “There are many indications for redefining acute ischaemic stroke as a thrombo-inflammatory disease. Animal studies have shown that the infarction can be kept from developing if the von Willebrand factor, the receptor glycoprotein GPIb or the collagen receptor GPVI on platelets is inhibited but also if T cells are blocked. Multifunctional molecules such as GPIb could deliver new therapeutic targets aimed at the connection between inflammation and thrombi formation.”
Lacunar strokes accelerate mental deterioration

Mental deterioration and dementia are frequent consequences of strokes. Prof Fazekas: “As the chances of survival after a stroke increase so too does the significance of quality of life as an issue following survival. The task must be to understand and assess the causes and mechanisms that attack mental health and prevent them.” Until now it has been unclear whether risks differ depending on the type of ischaemic stroke involved. Prof Fazekas: “A Scottish literature review suggests that lacunar strokes involving the occlusion of only small blood vessels in the brain have been underestimated. However, they have a horrendous effect. The prevalence of dementia after a stroke of this kind is 20 per cent. The incidence for the development of mild cognitive impairment amounted to 37 per cent.” Other studies assume that one in ten patients develop dementia within a year after the stroke unless strokes occur repeatedly. Prof Fazekas: “Lacunar strokes appear to be accompanied by mental deterioration especially if they occur in connection with microangiopathy, a disease of the small blood vessels. Further studies will have to clarify whether mental decline unfolds differently in lacunar strokes in the long-time forecast than with non-lacunar ones, not least because they have different underlying pathologies. The ability to predict possible mental decline would be important for patients and families who have to make arrangements for care. Neurology will have to keep seeking ways of preventing lacunar strokes or of impeding mental decline resulting from the disease.”

Sources:
Congress Abstracts: Gattringer et al: Gender aspects of acute stroke care: results from the Austrian Stroke Unit Registry; Stoll: Are platelet-immune cell interactions involved in reperfusion injury?

Press Office of the Joint Congress of European Neurology:
B&K - Bettschart&Kofler
Dr Birgit Kofler
Mobile: +43-676-63 68 930
E-Mail: kofler@bkkommunikation.com
Skype: bkk_Birgit.Kofler