Sex Hormones and Stroke Rehabilitation in Men and Women

To the Editor:

We read with great interest the recent article by Dr Paolucci and colleagues dealing with the gender differences in the rehabilitation status after stroke. The results of their study demonstrated that male patients had a 3 times higher probability than female patients of good autonomy in both stair climbing and activities of daily living. In addition, it was demonstrated that female patients had a higher risk of walking with a cane or of partial autonomy with respect to activities of daily living. The authors proposed that female sex might be an unfavorable prognostic factor in rehabilitation results after stroke.

Evidence indicates that microcirculation and endothelial function of vasculatures might be impaired in the paretic upper extremities after stroke, suggesting the suppressed endothelial vascular control and hemodynamic changes after stroke. It is well recognized that vascular endothelial function is markedly influenced by estrogen and is improved by hormone replacement therapy in postmenopausal women. In an in vitro study presented earlier, we demonstrated that 17β-estradiol increased membrane fluidity (a reciprocal value of membrane microviscosity) of erythrocytes and improved the rigidity of cell membranes in postmenopausal women via a nitric oxide (NO)-dependent mechanism. In a separate series of experiments, we showed that hormone replacement therapy restored the membrane microviscosity of erythrocytes in elderly women with a concomitant increase in plasma NO metabolite levels. These findings suggest that, because abnormalities in membrane microviscosity could cause a disturbance in the rheological behavior and the microcirculation, estrogen-deficiency might be related to the poorer functional prognosis in elderly women. Recently, the role of estrogen in male physiology has also become evident, and normal physiological estrogen, which is converted from testosterone by aromatase, may confer cardiovascular benefits for elderly men.

In this context, we speculate that changes in sex hormones might modify the course of rehabilitation after stroke in both men and women. Therefore, we would like to know whether the endogenous sex hormones might be different between men and women after stroke in the study of Dr Paolucci and colleagues. It would be important to assess more precisely the relationship between sex hormone status and rehabilitation results after stroke in both men and women.

Disclosures

None.

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