

## Controversies of thyroid dysfunction effects in patients with acute ischemic stroke

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**Background:** Previous studies showed that thyroid dysfunction is associated with more stroke severity and poorer functional outcome. However, there are controversies about the effects of particular thyroid hormones. **Methods.** 124 adult patients with acute ischemic stroke were included in this study. Exclusion criteria were autoimmune thyroiditis or thyroid carcinoma. Concentrations of free T3 (fT3), free T4 (fT4), TSH, as well as stroke risk factors were assessed during 24h from symptoms onset. Levels of thyroid hormones below 25 and above 75 percentiles were accepted as low and high respectively. Neurological deficit was assessed by Scandinavian Stroke Scale (SSS). **Results.** Analysis showed that patients with high fT3 levels ( $\geq 5.35$  pmol/l, 95% CI 5,01-5,61) had less severe stroke compared to other patients (SSS median 44.5 vs. 36,  $p = 0,0418$ ). This effect was stronger in the subgroup of patients without prior stroke or TIA (SSS median 48 vs. 37,  $p = 0,0148$ ). Multiple regression showed that fT3 level had influence on the risk of disabling deficit (mRs score  $\geq 3$  at 6 month after stroke) independently of gender, age, stroke risk factors and etiology (OR=0.6389, 95% CI 0,4173 to 0,9782). There was no connection between fT4 and TSH concentrations and stroke severity or functional outcome. **Conclusion.** This study confirmed that low fT3 levels are associated with greater neurological deficit and poorer outcome in stroke patients. Higher levels of fT3 seemed to play a protective role. Future studies should be aimed at assessing the possible positive effects of additional fT3 supplement during stroke.