

In the current study we aimed to measure NfL levels in patients with acute cerebrovascular stroke either ischemic or hemorrhagic in the general population from South of Egypt (Aswan), in comparison with healthy controls as well as to clarify its association with the stroke severity, etiology, risk factors, types and with stroke functional outcome in our studied patients. In ischemic patients, median NFL was 470.75 with IQR = 327.25 – 542.5 while in hemorrhagic patients, median NFL was 453 with IQR = 336 – 527.5. Using ROC curve, it was shown that serum NFL can be used to discriminate between Cases and Controls at a cutoff level 195, with 100% sensitivity, 100% specificity, 100% PPV and 100% NPV (AUC = 1.0 & p-value 0.001). We found no statistically significant correlation between median NFL level and risk factors (sex, smoking, DM., HTN, cardiac and dyslipidemia) (p-value = 0.492, 0.929, 0.667, 0.306, 0.079 and 0.252 respectively), despite these results we observed high levels of NfL levels on those patients who were diabetic, hypertensive, cardiac or had dyslipidemia. In patients with hemorrhagic stroke, there were statistically significant correlation between increased NFL level and presence of intraventricular extension (median = 530.5, IQR = 466.7 – 621, p-value = 0.002) (Figure 17) as well as hemorrhage volume ≥ 30 ml (median = 527.55, IQR = 466.5 – 563.5, p-value 0.001). 77 patients (90.6%) had stroke due to anterior circulation and 9 patients (9.4%) had stroke due to posterior circulation. According to TOAST classification; large artery atherosclerosis and small vessel occlusion were the etiology of ischemic stroke in 22 patients (51.2%) and 13 patients (30.2%) respectively while in 7 patients (16.3%), the etiology was cardio embolism. In patients with Ischemic stroke, there was high statistically significant correlation between NFL level and severe degree of weakness (hemiplegia) (median = 500, IQR = 450 – 568, p-value 0.001). For that we enrolled 85 patients with first-ever acute onset cerebrovascular stroke (either ischemic or hemorrhagic types) and age- and sex-matched apparently healthy subjects as normal controls. High statistically significant correlation between NFL level and large artery atherosclerosis as a cause for Ischemic stroke (median = 522, IQR = 494.5 – 647.2, p-value 0.001).