



Contribution ID: 17

Type: **Communication orale**

## **The impact of admission hyperglycemia on short term outcomes of Ethiopian acute stroke patients in Addis Ababa, Ethiopia**

Admission hyperglycemia (HG) has been associated with worse outcomes among acute stroke patients. A better understanding and awareness of the potentially adverse influence of hyperglycemia on the clinical outcome of acute stroke patients would help to provide guidance for acute stroke management and prevention of its adverse outcomes. We aimed to assess the frequency of admission hyperglycemia and its impact on short term (30-days) morbidity and mortality outcomes of stroke in adult Ethiopian patients in an urban setting. **METHODS:** A prospective, cross-sectional study was conducted among acute stroke patients admitted to Tikur Anbessa Specialized Hospital (TASH), within 72 h of symptom onset, from July to December 2016. Socio-demographic data, neuroimaging findings and capillary blood glucose values were obtained on admission. Hyperglycemia was defined as  $> 140$  mg/dl. National Institute of Health Stroke Scale (NIHSS) and modified Rankin Scale (mRS) were used to assess the baseline stroke severity and the 30-days post-stroke outcome, respectively. **RESULTS:** A total of 103 first-ever acute stroke patients were included (mean age =  $55.5 \pm 15.3$  years, 64.1% male and 65% under the age of 65 years) and 51 (49.5%) were hyperglycemic at time of admission. The median admission NIHSS score was worse in the hyperglycemic patients 14 (IQR 10-19) compared to normoglycemic patients 11 (IQR 8-15). Among stroke survivors, patients with hyperglycemia were 3.83 times (95% CI, 1.99-6.19) more likely to be functionally impaired (mRS = 3-5) at 30-days compared to normoglycemic patients ( $P = 0.041$ ). Older age ( $\geq 65$  years) ( $P = 0.017$ ) and stroke severity (NIHSS  $> 14$ ) ( $P = 0.006$ ) at admission were both significantly associated with poor functional recovery at 30-day. Among patients who died at 30-day, two-third (66.7%) were hyperglycemic but they failed to show any significant association. **CONCLUSIONS:** Hyperglycemia is prevalent among Ethiopian stroke patients at the time of presentation and it is associated with significantly poor functional recovery at 30th -day of follow up. This finding provides a rationale for achieving normal blood glucose in the course of acute stroke management which could have a favorable impact on the neurological outcome and quality of life for patients.

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