**Title:**

**Mechanical Thrombectomy for In-Hospital Versus Community-Onset Ischemic Stroke: Comparison of Time Metrics, Technical and Clinical Outcomes**

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**Abstract:**

***Objective:***

Intra-arterial thrombectomy (IAT) for in-hospital onset ischemic stroke with large vessel occlusion (LVO) is not uncommon. In-patient delay to timely neuroimaging and intervention is a reported phenomenon, but no local study on this specific issue is available. We aimed to analyze the technical and clinical outcomes of in-hospital stroke (IHS) patients with IAT performed, compared to the community-onset group (COS).

***Method:***

A retrospective 5-year data analysis was performed for 240 consecutive IATs done at Queen Mary Hospital from January 2016 to June 2021. They were dichotomized into the in-hospital and community-onset subgroups. Independent variables, such as baseline demographics, presenting NIHSS, ASPECTS, location of occlusion and thrombectomy device used, were collected. Primary outcome was functional independence (mRS 0-2) at 3 months. Secondary outcomes included onset-to-puncture time, CT-to-CTA (angiogram) time, onset-to-perfusion time, rates of successful reperfusion (TICI 2b/3), significant intracerebral hemorrhage (sICH) and 6-month mortality. These outcomes were compared with the COS cohort.

***Result:***

Among the IATs performed, 21% (50/240) were for in-hospital stroke. 38% (19/50) occurred peri-procedurally (within 14 days post-intervention). The rate of intravenous tissue plasminogen activator (IV-tPA) administration was lower (22% vs 48%, *P*<0.001) in the IHS group. The mean onset-to-puncture (297 vs 247 min, *P*=0.041) and onset-reperfusion time (379 vs 314 min, *P*=0.009) were significantly longer in the IHS group. The 3-month mRS 0-2 rate (40% vs 41%, *P*=0.91), successful reperfusion rate (84% vs 86%, *P*=0.85), 6-month mortality (31% vs 27%, *P*=0.71) and sICH (2% vs 5%, *P*=0.69) were similar.

***Conclusion:***

There were significant time latencies in the management of in-hospital onset LVOs. This may represent missed opportunities in the management of hyperacute stroke. Pre-specified pathways and revolutions in workflow sequence are needed to close the gap with community-onset LVOs.