# MEASUREMENT OF FUNCTIONAL OUTCOME USING THE MODIFIED RANKIN SCALE IN PATIENTS WITH ACUTE ISCHAEMIC STROKE


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## OBJECTIVES

The study aimed to assess the functional outcomes of patients with acute ischaemic stroke using the Modified Rankin Scale (mRS) 90 days post-stroke and compare the effectiveness of different recanalisation therapies.

## METHODS

Patients were divided into intravenous thrombolysis (IVT), mechanical thrombectomy (MT) and standard care (SC) groups according to treatment. During the follow-up period, stroke severity was measured by the NIH Stroke Scale (NIHSS), functional outcome by the Modified Rankin Scale (Pre-mRS, follow-up mRS), and quality of life by the European Quality of Life 5 Dimensions Scale (EQ-5D-5L). The admission NIHSS was recorded after hospital admission, before the intervention, while the discharge NIHSS was recorded in person on the day of discharge, while still in the hospital. EQ-5D-5L and pre-mRS were recorded in person on days 1-2 after the intervention, while 2. EQ-5D-5L and follow-up mRS were recorded by telephone after hospital discharge. The study period was from April 2022 to July 2023.

## RESULTS

The study included 191 participants (110 men, 81 women) (MT: 48, IVT: 68, SC: 75) *(Figure 1 & Table 1)*. Significant changes in NIHSS scores were observed in all three groups. (IVT: 4.25 vs. 1.41, p<0.001; MT: 8.94 vs. 4.33, p<0.001, SC: 4.16 vs. 2.61 p<0.001) *(Figure 2)*. EQ-5D-5L also increased significantly in all groups after 90 days (IVT: 0.83 vs. 0.90 p<0.001; MT: 0.64 vs. 0.78, p<0.001, SC:0.77 vs. 0.86 p<0.001) *(Figure 3)*. For Pre-mRS and follow-up mRS scores, most patients in all three groups were in the mild category 0-2 (Pre-mRS: 173 patients; 91%, follow-up mRS: 159 patients; 83%) *(Table 2)*.

## CONCLUSIONS

Mechanical thrombectomy was identified as the most effective therapy, demonstrating significant improvements in neurological status and quality of life, although minimal changes were observed in mRS scores. The IVT and SC groups also showed positive results, albeit with less pronounced effects.


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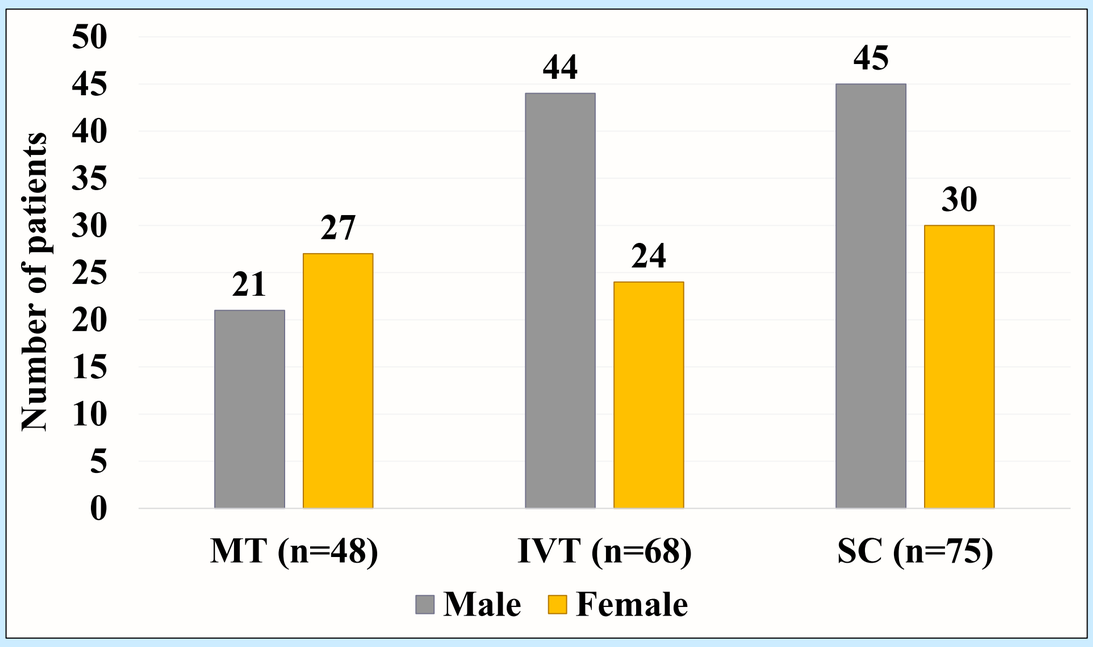


*Figure 1.* Number of patients according to gender and treatment type

| | Thrombectomy | | | Thrombolysis | | | Standard | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Number of patients (n) | 21 | 27 | 48 | 44 | 24 | 68 | 45 | 30 | 75 |
| Distribution of patients (%) | 43.75 | 56.25 | 100.00 | 64.70 | 35.30 | 100.00 | 60.00 | 40.00 | 100.00 |
| Average age (years) | 67.76 | 70.00 | 69.02 | 63.00 | 66.13 | 64.11 | 65.64 | 69.36 | 67.13 |
| BMI | 28.75 | 28.52 | 28.62 | 28.99 | 26.91 | 28.25 | 28.16 | 26.74 | 27.59 |

*Table 1.* The number, percentage, average age and BMI of the participants in the study

| | Thrombectomy | | | Thrombolysis | | | Standard | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | p-value | n | % | p-value | n | % | p-value | n | % |
| Pre-mRS (0-2) | 39 | 81 | *0.016* | 63 | 93 | *0.219* | 71 | 95 | *0.063* | 173 | 91 |
| Pre-mRS (>2) | 9 | 19 | | 5 | 7 | | 4 | 5 | | 18 | 9 |
| Follow-up mRS (0-2) | 34 | 71 | | 59 | 87 | | 66 | 88 | | 159 | 83 |
| Follow-up mRS (>2) | 14 | 29 | | 9 | 13 | | 9 | 12 | | 32 | 17 |

*Table 2.* Results of the Modified Rankin Scale

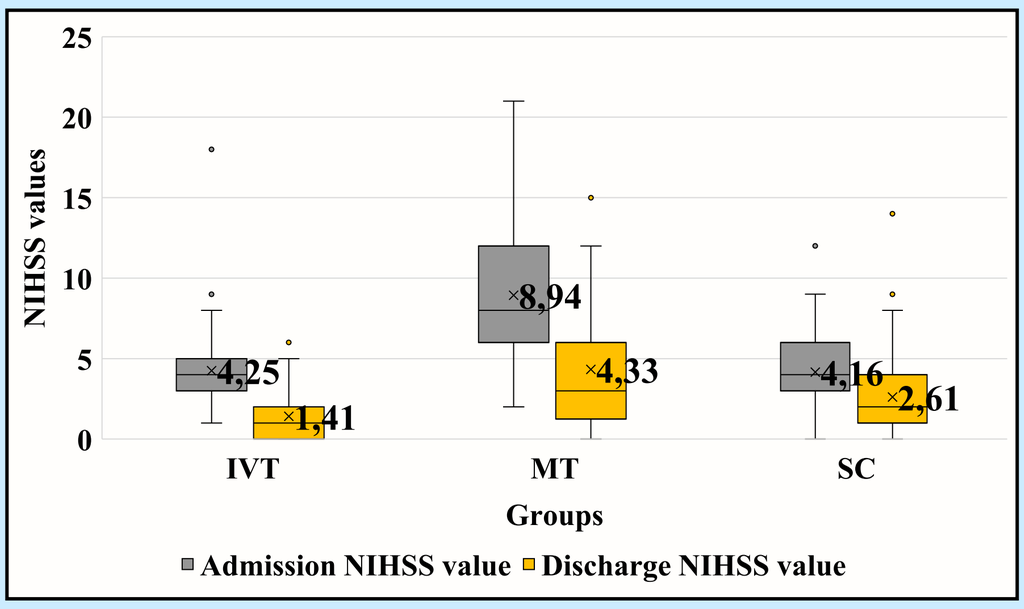


*Figure 2.* Boxplot of NIHSS values over the study period

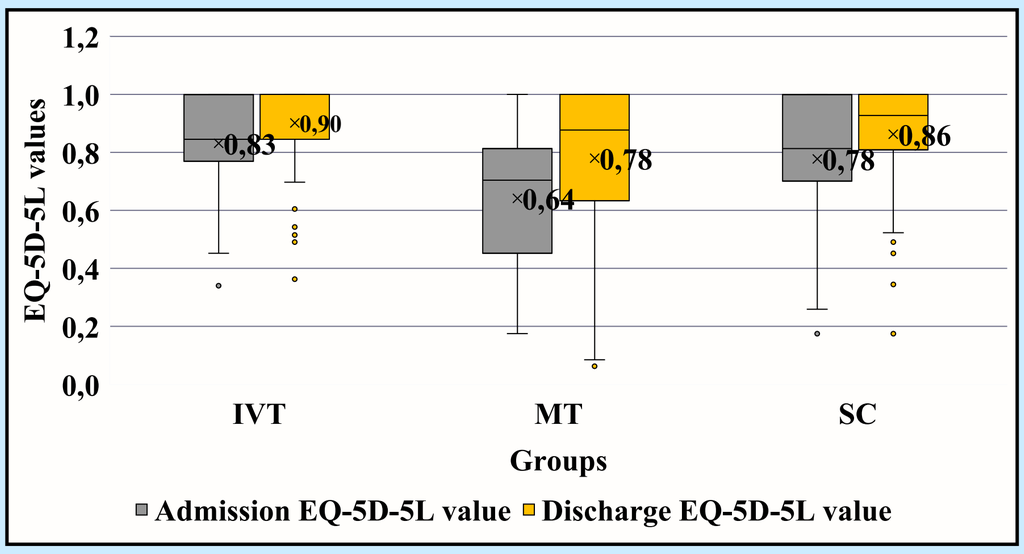


*Figure 3.* Boxplot of EQ-5D-5L values over the study period