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Abstract Number: 184 / Improving Door to Groin Puncture Time using AI in a Hub-and-spoke network

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Abstract Title: Improving Door to Groin Puncture Time using AI in a Hub-and-spoke network

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Introduction:

The outcome of stroke patients is time dependent ¹, and stroke networks aim to minimize treatment times, especially the Door to Groin Puncture time (DGPT)². AI-assisted care coordination for Large Vessel Occlusion (LVO) stroke may be one approach to improving patient workflow ³, but there is a limited evaluation of its impact in Italy.

Aim of Study:

To assess the effect of AI implementation on the median DGPT in a hub-and-spoke network.^{4 5}

Methods:

We implemented an AI-based system (Viz LVO/CTP, Viz.ai, Inc.)⁶ in the hub⁷ of a hub-and-spoke network in Southern Italy (A.O.U. Federico II, Naples)⁷. This AI-based system provides a stroke team pre-alert and alert for suspected LVO detection, automatic CT perfusion processing, and in-app communication. We collected DGPT^{7 4 5} and performed a retrospective analysis of two cohorts: pre-AI from February 18, 2021 to June 7, 2022, and post-AI from June 12, 2022 to December 27, 2022. Suspected stroke patients arrive directly to the CT room for neurological evaluation with subsequent transfer to the almost adjacent angiography suite if necessary.

Results:

A total of 98 consecutive patients (52 males and 46 females) were included: 46 in the pre-AI and 52 in the post-AI cohorts. The median DGPT was improved by 14 minutes after AI implementation (19 minutes post-AI vs 33 minutes pre-AI, $p < 0.0001$ by the Mann-Whitney U test).

Conclusion:

The introduction of an AI-based system improved patient workflow by lowering the DGPT in an Italian hub-and-spoke system.



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