



Conference Abstract

8th The Holy Quran & Science Conference and Exhibition - 2021

<http://dx.doi.org/10.21065/25205986.C2021.11>



The phenomenal speaker presents this research in 8th International the Holy Quran & Science Conference and Exhibition-2021, held in Mississauga ON Canada. The Conference Abstract is published on behalf of the decision of acceptance and approval of Conference Organizing Committee.

Correspondence:

Conference Secretariat, 10610 Jane Street Maple, ON L6A 3A2 Canada.
+1(905)832-2669 | +1(905)303-4000
| F.: 905-832-3220 |
info@quranandscience.org

Citation:

Mehmood Mirza. Combined use of literature analysis, realistic in-vitro model creation, and continuous prototype testing for creating robust medical devices. Vol. 1 (Sp. Issue). p. 11-12. doi-
<http://dx.doi.org/10.21065/25205986.C2021.11>

Competing Interest

The authors declare no competing interests.

Additional information is available at the end of the article.

Conference Abstract

COMBINED USE OF LITERATURE ANALYSIS, REALISTIC IN-VITRO MODEL CREATION, AND CONTINUOUS PROTOTYPE TESTING FOR CREATING ROBUST MEDICAL DEVICES

DR. MAHMOOD MIRZA

Ethics approval and consent to participate: No ethical approval needed for this research work.

Consent for publication: Author is agreed to submit this abstract for publication in this research journal.

Availability of data and materials: The information and data collected and/ or incorporated in this study is included in this manuscript.

Abstract

Purpose: In acute ischemic stroke for large vessel occlusions, delayed or failed access to intracranial occlusions has a negative impact on procedural and clinical outcomes. We attempted to quantify the failures and challenges in mechanical thrombectomy, reproduce the anatomical models, and utilize them for designing and developing medical devices.

Methods: The first part was a systematic literature review from January 2014 to October 2020 where crude failure rates were quantified. Simultaneously, novel silicone printing technologies were utilized for recreating specific challenging anatomical models. Finally, a series of iterative R&D steps were taken to test prototypes of devices to overcome these challenges until a robust solution was identified.

Results: For the literature review, a total of 50 articles met the inclusion criteria, totaling 12,838 interventions. Failure to access the occlusion through transfemoral access occurred in 4.4% of patients, most commonly due to challenging supra-aortic vessel anatomy. The review was presented at congresses and published in peer-reviewed journals. Through partnerships under Enterprise Ireland, 3 novel and realistic silicone models were recreated. Over the course of 3 years, prototypes of varying degrees were evaluated until ad device was finalized in June 2021, and end route to launch in Jan 2022.

Conclusion: Failure to access the occlusion is a significant contributor to failed

recanalization, regardless of access routes. Understanding and re-creating these challenges can help create in-vitro models used for developing medical devices that overcome real patient challenges

Key words: Literature, Prototype



© 2021The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share — copy and redistribute the material in any medium or format

Adapt — remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits