An observational study of the Q Aspiration Catheter used during neurointervention for acute ischemic stroke in Spain

The TAPAS Study

Protocol #101347
Rev B
01 August 2019

Sponsor:
MIVI Neuroscience, Inc
6545 City West Parkway
Eden Prairie, Minnesota 55344
USA

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1 PROTOCOL AGREEMENT

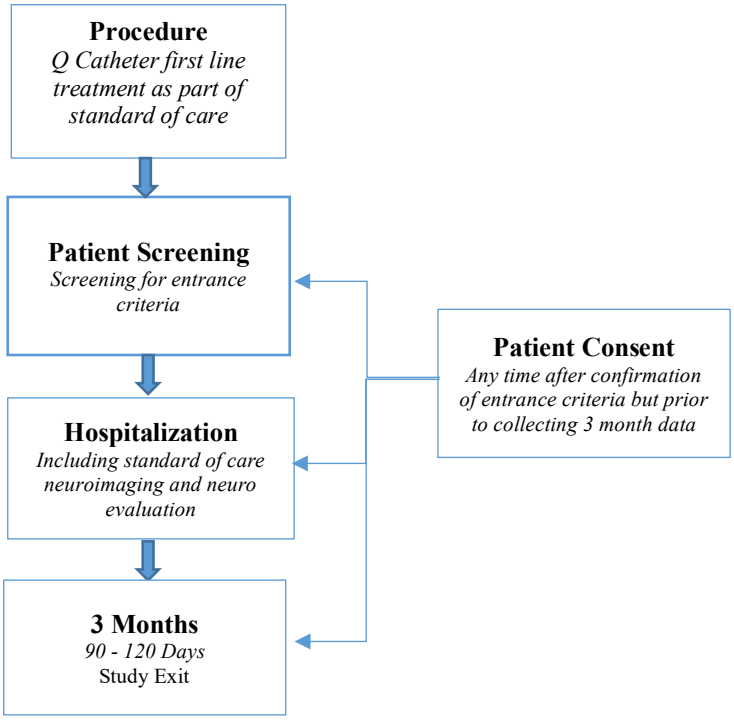
I, the undersigned Investigator(s), have read and understood the protocol. I agree to perform and conduct the study as described herein and in accordance with the signed Investigator Agreement and all applicable laws.

Principal Investigator's Signature _____ Date _____

2 PROTOCOL SYNOPSIS & FLOW CHART

Title	An observational study of the Q Aspiration Catheter used during neurointervention for acute large vessel ischemic stroke in Spain.
Description	The TAPAS Study: Thrombectomy Aspiration Post market study in Acute Stroke
Sponsor	MIVI Neuroscience, Inc.
Protocol No.	101347 Rev B
Study Device	MIVI Q Aspiration Catheter (CE Marked)
Primary Efficacy Endpoint	Successful revascularization defined as final mTICI 2b-3 flow in the target vessel.
Primary Safety Endpoint	Symptomatic intracranial haemorrhage post- procedure as detected by CT scan/ MRI with an NIHSS change of $\geq$ 4.
Secondary Endpoints	• Successful revascularization defined as mTICI 2b-3 flow in the target vessel post-treatment with the Q Catheter alone (first line therapy) • Embolization to a new neurovascular territory • Good functional outcome of Modified Rankin Score of 0-2 at 90 days • Mortality at 90 days
Inclusion Criteria	• Age 18 to 85 years • Diagnosis of acute ischemic stroke with mechanical thrombectomy procedure < 8 hours from onset of symptoms/ last well known well • Large Vessel Occlusion on CT scan or MRI in the Anterior Cerebral Vasculature up to A1, M1, M2, or Posterior Cerebral Vasculature • ASPECTS 6 – 10 or volume of diffusion restriction < 50 mL • Use of the Q Aspiration Catheter as the first line treatment according to the IFU • Signed informed consent form
Exclusion Criteria	• Occlusions in multiple vascular territories, extracranial or tandem occlusion • Evidence of dissection in the carotid or target artery for treatment • Evidence of recent/fresh haemorrhage on presentation • Unwilling to agree to a 3 month follow up visit

Follow-up	Subject will have one visit at about 3 months post-procedure.
Scope	This study will enroll a total of 50 subjects at up to 5 investigational sites in Spain.



3 BACKGROUND

3.1 Overview

Stroke is the second single most common cause of death in Europe accounting for almost 1.1 million deaths each year, based on data from WHO estimated the number of strokes in the year 2000. Furthermore, it has been predicted that stroke incidence will increase to 1.5 million per year by 2025, largely owing to the increasing proportion of elderly individuals.

Ischemic strokes represent approximately 87% of all strokes while the remaining 13% are hemorrhagic. The chief goal in treating acute ischemic stroke is to restore cerebral blood flow as rapidly and safely as possible. Currently there are two approaches to treatment, intravenous (IV) delivery of Tissue Plasminogen Activator (tPA), a thrombolytic agent, and mechanical thrombectomy. Combining IV tPA treatment with mechanical thrombectomy has recently been shown to demonstrate an advantage with good clinical results for patients.[1,2,3]

Endovascular treatment using mechanical devices to recanalize the occlude vessel include the use of catheters to directly deliver a clot-disrupting or retrieval device to the thrombus, this includes aspiration catheters, stent-retrievers and other clot disrupting devices. However, withdrawing the clot disrupting devices by mechanical force to perform thrombectomy may increase the risk of vascular intimal injury and the incidence of vasospasm. Therefore, aspirating clot may be preferred to reduce vessel damage during recanalization.[4] Mechanical revascularization using an aspiration catheter as the primary approach to clot removal is commonly performed and

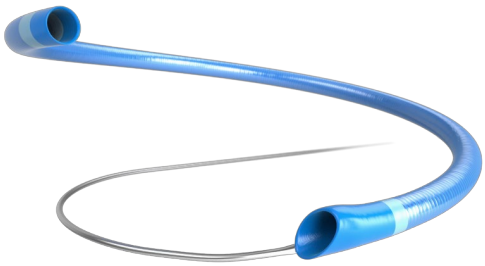
sometimes referred to as the ADAPT technique.[5] The ADAPT technique is favor by some physicians because of its potential to be less traumatic to the neurovasculature and improve on time to revascularization compared to stent retrievers.[6,7]

The MIVI Neuroscience, Inc. CE Marked Q Aspiration Catheter is a family of short, extension catheters introduced through an 8F guide catheter/6F sheath. Aspiration is performed from the short Q Catheter into the guide catheter/sheath. The MIVI Neuroscience, Inc. Q Aspiration Catheter may offer an increased force of aspiration from the larger 8F guide lumen and the potential access to more distal clot with the small Q Catheter lumen.

3.2 Q Aspiration Catheter Description

The MIVI Q Aspiration Catheter consists of a single lumen, variable stiffness shaft with radiopaque markers are included on the distal and proximal end of the catheter portion for angiographic visualization. The catheter shaft has a hydrophilic coating to reduce friction during use. The proximal portion of the catheter is a stainless-steel control wire. The Q Aspiration Catheter is designed to be used with an 8F guide/6F sheath for use in the removal of fresh, soft emboli and thrombi in the neurovascular system.

FIGURE 1 6F Q Catheter Illustration & Drawing



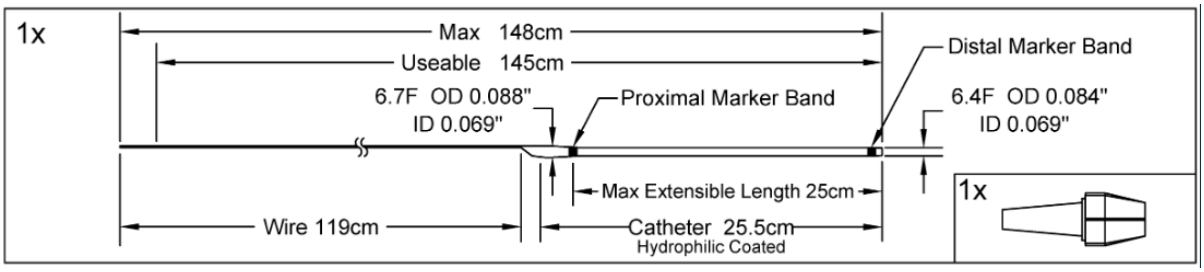


TABLE 1 Q Dimensions and Configurations

Device	Total Length (cm)	Catheter Section Length (cm)	Proximal Catheter Section ID	Proximal Catheter Section OD	Distal Catheter Section ID	Distal Catheter Section OD
Q6 6F Catheter	145	25	1.75 mm (0.069”)	2.24 mm (0.088”) 6.7F	1.75 mm (0.069”)	2.13 mm (0.084”) 6.4F
Q5 5F Catheter	145	25	1.45 mm (0.057”)	2.24 mm (0.088”) 6.7F	1.45 mm (0.057”)	1.83 mm (0.072”) 5.5F
Q4 4F Catheter	150	30	1.45 mm (0.057”)	2.24 mm (0.088”) 6.7F	1.09 mm (0.043”)	1.4 mm (0.055”) 4.2F
Q3 3F Catheter	163	43	1.45 mm (0.057”)	2.24 mm (0.088”) 6.7F	0.91 mm (0.036”)	1.22 mm (0.048”) 3.7F

3.3 Intended Use

The Q Aspiration Catheter is indicated for use in the removal of fresh, soft emboli and thrombi in the peripheral and neurovascular systems. It may also be used as a diagnostic angiographic catheter.

It is intended to be used by physicians skilled in the field(s) Interventional Radiology, Interventional Neuroradiology, Neurosurgery and/or Neurology who are skilled in endovascular interventional procedures for acute ischemic stroke.

The Q Catheter is a family of short, extension catheters that is introduced through an 8F catheter. Aspiration is performed from the short Q and into the 8F catheter. The Q is visible under fluoroscopy and must be hydrated for at least 1 minute in saline prior to use. The Q is typically introduced over a guidewire and is advanced to the desired vessel in the neurovasculature under fluoroscopy. Once in place, tubing attached to a vacuum pump and to the stopcock of an 8F catheter. Thrombus is then aspirated through the Q and into the 8F catheter. At the end of the procedure, all devices are carefully removed and discarded. Device compatibility is in **Table 2** below.

TABLE 2 Q Compatibility

Device	Maximum Guidewire Size	Maximum Microcatheter Size	8F Guide Catheter / 6F Sheath ID Range
Q6 6F Catheter	0.035”	5.0F	0.088” – 0.090” (2.2 – 2.3 mm)
Q5 5F Catheter	0.035”	4.0F	0.088” – 0.090” (2.2 – 2.3 mm)
Q4 4F Catheter	0.035”	3.0F	0.088” – 0.090” (2.2 – 2.3 mm)
Q3 3F Catheter	0.018”	2.4F	0.088” – 0.090” (2.2 – 2.3 mm)

The MIVI Super 90 Guide Catheter or any other commercially available and compatible 8F catheter may be used with the Q Catheter.

The Q Aspiration Catheter is a Class III medical device in the EU and obtained CE Mark in March 2018.

4 STUDY DESIGN AND OBJECTIVES

4.1 Study Purpose and Design

The purpose of this study is to demonstrate the safety and performance of the MIVI Neuroscience, Inc. Q Aspiration Catheter for use in the removal of fresh, soft emboli and thrombi in the neurovascular system during acute ischemic stroke. The study is an observational study that will enroll a maximum of 50 subjects in Spain.

Subjects will be followed through hospitalization and a visit 3 months post-procedure. A maximum of 5 sites in Spain will be involved in this study. Enrollment is expected to take approximately 6 months.

4.2 Primary Endpoints

The primary performance endpoint is successful revascularization defined as final mTICI 2b-3 flow in the target vessel.

The primary safety endpoint is symptomatic intracranial haemorrhage at 24 hours post-procedure as detected by CT scan/MRI with an NIHSS change of greater than or equal to 4.

4.3 Secondary Endpoints

- Successful revascularization defined as mTICI 2b-3 flow in the target vessel post-treatment with the Q Catheter alone (first line therapy)
- Embolization to a new neurovascular territory
- Good functional outcome measured by Modified Rankin Score of 0-2 at 90 days
- Mortality at 90 days

5 RISK / BENEFIT ANALYSIS

5.1 Potential Risks

The potential risks of mechanical aspiration thrombectomy for acute ischemic stroke treatment are well understood. Patients were informed of procedural risk and consent to the procedure per the Hospital's standard practice. This is an observational study with patient consent after a "standard of care", non-research mechanical thrombectomy procedure and hospitalization. There is no additional risk of a 3 month visit.

The potential risks of participation in this study are clearly identified in the subject informed consent form and are to be explained to the patient and/or their legal representative prior to participating in the study.

5.2 Potential Benefits

There is no guarantee or certainty that the subjects will benefit from this study. Data collected in this study may provide information for your doctor to treat future patients with a stroke.

5.3 Minimization of Foreseeable Risks

The Aspiration Catheter has been tested during the development process, including mechanical testing, *in vitro* testing, and animal testing. Standardized biomaterial safety testing has confirmed that the device is safe and comparable to legally marketed devices. Currently there is no Clinical Investigation data.

The sites participating in the study must agree to conduct the study in compliance with the protocol, GCP, and applicable local and international regulatory requirement(s).

6 STUDY POPULATION

6.1 Study Population

The observational study population is patients diagnosed with large vessel occlusion acute ischemic stroke within 8 hours of stroke onset treated with mechanical aspiration thrombectomy with the Q Aspiration Catheter as first line therapy. The Q Aspiration Catheter must be used according to the IFU to be included in the study. All study candidates (or legal representative) must be able to provide written informed consent and agree to be followed at 3 months post-procedure.

6.2 Number of Subjects

Up to 50 subjects may be enrolled at up to 5 investigational sites in Spain. A center may enroll a maximum of twenty subjects.

6.3 Inclusion Criteria

Subjects who meet the following criteria may be included in the study:

1. Age 18 to 85 years;
2. Diagnosis of acute ischemic stroke with mechanical thrombectomy procedure < 8 hours from onset of symptoms or last known well;
3. Large Vessel Occlusion on CT scan or MRI in the Anterior Cerebral Vasculature up to A1, M1, M2, or Posterior Cerebral Vasculature;
4. ASPECTS 6 – 10 or volume of diffusion restriction < 50 mL;
5. Use of the Q Aspiration Catheter as the first line treatment according to the IFU;
6. Signed informed consent by patient or legally authorized representative.

6.4 Exclusion Criteria

Subjects who meet any one of these criteria will be excluded from the study:

1. Occlusions in multiple vascular territories (e.g., bilateral anterior circulation, or anterior/posterior circulation) extracranial occlusion or tandem occlusion;
2. Evidence of dissection in the carotid or target artery for treatment;
3. Evidence of recent/fresh haemorrhage on presentation;
4. Unwilling to agree to a 3-month follow up visit.

7 ETHICS

7.1 Ethics Committee (EC) and Ethical Conduct of the Study

This study will be conducted in compliance Good Clinical Practice and the ethical principles of the Declaration of Helsinki. The study protocol and consent must be approved by the responsible EC for each investigational site. Study activities (patient consent) must not commence prior to receipt of documentation of EC approval by the site and sponsor. Copies of the Investigator's reports and the EC continuance of approval must be sent to the sponsor. The Investigator and study staff must comply with the requirements of their EC.

The Investigator must submit and, where necessary, obtain approval from the EC for all subsequent protocol amendments and changes to the Informed Consent Form. The Investigator must notify the EC of deviations from the protocol, SAEs, and SADEs occurring at the site in accordance with local procedures.

7.2 Subject Information and Consent

Subjects must be informed about the study prior to enrollment. Only those subject's (or subject's legal representative) who voluntarily provide written consent will be allowed to participate in the study. The original signed consent form should be retained in the patient's study records and a copy should be provided to the patient or legal representative. If the patient is unable to provide informed consent or is deceased prior to consenting, a legally authorized representative may consent to use the patient's medical record.

A sample informed consent document suitable for use in this study will be provided. Iterations of this document must be approved by the reviewing Ethics Committee and the sponsor or sponsor-designate. Subjects must be presented with the most current EC approved version of the consent form for signature and study enrollment. The consent form and consent discussion should be in a language the subject understands. No study related data may be collected prior to patient consent. Study subject's must be consented prior to or at the study 3 month visit.

Subjects may withdraw participation at any time during the investigation without sacrificing their rights as a patient or compromising their quality of medical care.

8 STUDY PROCEDURES

8.1 Screening and Enrollment

All patients diagnosed with acute ischemic stroke who undergo mechanical thrombectomy with the Q Aspiration Catheter as first line therapy, without regard to gender, are eligible for screening to participate in the clinical study. Patients will be screened based on the study inclusion and exclusion criteria after the procedure.

A screening log should be kept of all subjects in whom the Q Aspiration Catheter was used to prevent bias in subject selection. Death may be added to the screening log as reason for screen failure, if applicable.

8.2 Baseline

Baseline data will only be collected after the subject has agreed to participate and signed an informed consent form. Baseline data collected will include: hospital transfer, age, sex, vital signs (height, weight, blood pressure, respirations, etc), pertinent medical history, pre-treatment NIHSS, pre-stroke Modified Rankin Score, neuroimaging results, and thrombolytic therapy.

8.3 Mechanical Thrombectomy Procedure

To be eligible to participate, the procedure had to begin within 8 hours of stroke onset with planned first line therapy of the use of the Q Aspiration Catheter alone.

Digital subtraction angiography should have been undertaken to verify vessel occlusion using diagnostic angiography and contrast agent. Repeat diagnostic angiography should have been done on the treated region to assess recanalization grade per mTICI criteria after Q Catheter use and at the end of the procedure.

The Q Aspiration Catheter must be used per the Instructions for Use to be eligible for participation. Per the IFU, the Q Aspiration Catheter may be used with three aspiration attempts.

Procedural data collection will include:

- General procedural data (anesthesia use, procedure start time, revascularization time and end time, thrombolytic therapy administered, ancillary device use)
- Target vessel location
- Pre-and post-procedure target vessel flow information
- Q Aspiration Catheter use during the procedure
- Rescue device use, if applicable
- Treatment outcome
- Embolization to a new territory
- Procedure and device-related adverse events or any device related problems
- De-identified procedural angiogram should be collected for the Core Lab (only after subject consent) (see Section 11.7)

8.4 Hospitalization

Post procedural data collection will include:

- Neurovascular imaging and NIHSS at day 1 post procedure results (0-36 hour window)
- Serious Adverse Event monitoring including worsening symptoms/new symptoms

Study Investigator should determine if there was an NIHSS increase greater than or equal to 4 points along with neuroimaging (CT or MRI) results showing intracranial hemorrhage, if the subject experiences a symptomatic intracranial hemorrhage.

If available, information on the subject's discharge destination, days in intensive care unit and anticoagulation use will be collected along with any serious adverse event experience during hospitalization.

8.5 3 Month Follow Up

The final and only study-specific visit will be the 3 month (90 - 120 days) office or telephone visit. The Modified Rankin Scale (mRS) is administered, a review of the subject's health and assessment for serious adverse events will be recorded.

TABLE 3 DATA COLLECTION

Assessment	**Baseline**	**Procedure**	**Post Procedure**	**Day 7 or Prior to Discharge**	**3 Month Follow-up**
Visit Window	< 8 hours from stroke onset	< 8 hours from stroke onset	0 - 36 hours post procedure	1 day prior or day of discharge/ transfer or Day 7	90 - 120 days post-procedure
Informed Consent			X[1]	X[1]	X[1]
Medical History	X				
Vitals	X				
Neuroimaging (CT/MRI)	X		X		
NIHSS	X		X		
mRS	X				X

Procedure and device use data		X			
Serious Adverse Event Collection		X	X	X	X

1 Informed Consent may happen at any time after the procedure but must happen prior to the initiation of the 3 month visit (but may be signed at the beginning of the visit)

8.6 Subject Withdrawal/Study Completion

Subjects will complete the study after the 3 month follow up visit. For a subject who withdraws from the study, all data collected up to the point of withdrawal is retained. A subject wishing to withdraw from the study should provide that request in writing to the site to document the decision.

8.7 Protocol Deviations

A protocol deviation is defined as an event where the clinical investigator or site personnel did not conduct the study per the protocol or the Investigator/Trial Agreement.

No protocol deviations will be made to the investigational plan. The investigator is required to adhere to local EC procedures for reporting deviations.

9 ADVERSE EVENTS

9.1 AE Definitions

Adverse Event (AE):
Any untoward medical occurrence, unintended disease or injury, or untoward clinical signs in subjects, whether or not related to the use of the study device or procedures.

Serious Adverse Event (SAE):
Any untoward medical occurrence that meets any of the following criteria:

- Resulted in death
- Resulted in inpatient hospitalization or prolonged an existing hospitalization
- Resulted in a life-threatening illness or injury (patient in immediate danger of death)
- Resulted in permanent impairment of a body function or permanent damage to a body structure
- Necessitated medical or surgical intervention to prevent life-threatening illness or injury or permanent impairment of a body function or body structure

A life-threatening adverse event means any adverse event that places the patient, in the opinion of the Principal Investigator, at immediate risk of death from the reaction as it occurred, i.e., it does not include a reaction that, had it occurred in a more severe form, might have caused death.

A planned hospitalization for a pre-existing condition, without a serious deterioration in health, is not considered a serious adverse event.

Adverse Device Effect (ADE):
An ADE is an adverse event related to the use of a medical device. An event should be considered related to the device when it is the result of: insufficient or inadequate instructions for use or any malfunction of the device.

An event should be considered not related to the device when it is the result of: a pre-existing medical condition, a new illness, injury or condition, or due to medication.

Unanticipated Adverse Device Effect (UADE):
An unanticipated adverse device effect is defined as "any serious adverse device effect which by nature, incidence, severity or outcome has not been identified in the current risk analysis. Those known adverse events related to the device are listed in the IFU.

9.2 Adverse Event Reporting

In the case of any serious adverse effects (SAE) or complications reported by patients or by the attending clinician attributable to the use of the device, the event will be reported to the EC and CA, as applicable, per standard post-market device monitoring.

All serious adverse events, and/or device deficiencies that may have led to an ADE and is serious must be reported to the Sponsor within a reasonable time of the Principal Investigator becoming aware of the event and without an unjustified delay.

The Sponsor can be contacted at the following:

Email Address	clinical@mivineuro.com
Fax Number	+1 952.944.3488
Telephone Number	+1 952.944.3834

The Investigator shall assess adverse events according the definitions set out in this protocol and determine seriousness and relationship to the device.

9.3 Device Malfunction/Failure

Device malfunctions or failures will be reported per post market device reporting requirements. The following situations should be reported:

- All situations where the device is physically defective, including out of the box failure;
- All situations where the device physically deforms or breaks, even if caused by user error;
- All situations where the device mechanically fails to perform as intended.

10 STATISTICAL DESIGN AND ANALYSIS PLAN

10.1 Study Design Justification

This is a multi-center study involving up to 50 subjects at up to 5 investigational sites in Spain. The purpose of the study is to collect data on the safety and performance of the Q Aspiration Catheter used to remove thrombi and emboli from the neurovasculature during acute ischemic stroke. The primary safety endpoint for this study symptomatic intracranial haemorrhage within 24 hours post-procedure along with an NIHSS change of >4. The primary performance endpoint is successful revascularization of the target artery defined as mTICI 2b-3 flow at the end of the procedure.

10.2 Statistical Methods

This study is a single arm, registry study with endpoints compared to well defined and published outcomes. This study is designed for observational data to be collected and reported. There will be no formal statistical hypothesis testing conducted, and therefore sample size is not based on power calculations.

Data analysis will comprise of descriptive statistics (means, standard deviations, rates, correlations, etc.) on the variables detailed in the study endpoints and other data collected.

The analyzed population will consist of all subjects who signed an informed consent form.

10.3 General Statistical Considerations

All endpoints will be analyzed descriptively. In general, continuous parameters will be summarized by number of evaluable observations, mean, standard deviation, median, minimum, and maximum. Categorical data will be described by frequency counts and percentages.

Every effort will be made to collect complete data. Unless otherwise specified, imputation of missing data will not be performed. Given the timing for evaluation, missing data is expected to be minimal to none for the primary safety and effectiveness endpoints. The primary analysis for the primary endpoints will include all subjects in the analysis population.

11 STUDY MANAGEMENT

11.1 Investigator/Site Selection

MIVI Neuroscience or its Contract Research Organization (CRO)/designee are responsible for conducting a Selection/Qualification Visit with potential investigational sites, if deemed necessary, to determine if the investigator and investigational site meets the criteria for conducting the clinical investigation. The Selection/Qualification Visit may be in person, over the phone, based on previous experience with the site, or a combination thereof. The site screening and qualification results will be documented, and a participation decision communicated to the potential site.

11.2 Site Initiation and Training

A Site Initiation Visit will be conducted and documented to train the study staff on study conduct prior to enrollment in the study. Documentation of study specific training and study role will be documented. Training will include the specifics of study conduct, device-specific information, and adverse event reporting. A sponsor representative may be present at the procedure to provide additional training and support.

Prior to enrolling patients at an investigational site, all required documentation must be completed.

11.3 Q Aspiration Catheter Devices

The Q Aspiration Catheter is a CE Marked device used according to the IFU, therefore device may be shelf stock. A site may be supplied with devices for study. If device is supplied to the site, the investigator or delegated personnel must maintain records of the product delivery to the site, the inventory at the site, the use, and the return to the sponsor.

11.4 Clinical Study Management Responsibilities

The sponsor's clinical department personnel or a sponsor representative(s) will have overall study management responsibility including on-site consultation to assist with technical support, protocol adherence, assurance of the accuracy of case report forms, and compliance with applicable regulations. The contact information for the study sponsor is:

Attn: Clinical Department

MIVI Neuroscience, Inc.
6545 City West Parkway
Eden Prairie, MN 55344 USA
Phone +1 (952) 944-3834
Fax +1 (952) 944-3488

11.5 Case Report Forms (CRFs)

The sponsor or designee will provide case report forms for the study. Case report forms must be completed to capture each enrolled subject's study data either on paper or electronically. The source data (paper or electronic) includes and is not limited to the information contained in original medical records and certified copies of results, test results and printouts, patient questionnaires, source worksheets, and electronic monitoring data. Data queries will be routed to the investigational site to resolve any data discrepancies. The site should respond to the query within 10 working days. Investigators will be responsible for acknowledging the completeness and accuracy of the data by signing, either electronically or on paper, CRFs where indicated.

11.6 Study Monitoring

The investigational site will be monitored to ensure compliance with the study protocol, adherence to applicable regulations, and accuracy of study data. MIVI Neuroscience and/or its CRO/designee will monitor the study by frequent communications with and visits to each clinical site to ensure the trial is conducted in accordance with this clinical protocol and the law.

The study monitor(s) will be responsible to complete a review of regulatory documents, source documents, and case report forms for accuracy, completeness, and legibility. Site monitoring visits will be documented in a written monitoring report to include the identification of any follow-up items or concerns. Resolution of follow up items and concerns will also be documented in the monitoring report.

The investigator will permit the sponsor and/or agent from the relevant regulatory authority or appointed member from the IEC, or equivalent, if requested, to inspect all case record forms and corresponding portions of the study patients' original office and/or hospital records.

11.7 Core Laboratories

An independent angiographic core laboratory will be utilized for this study to interpret all angiographic data gathered on all study subjects and determine mTICI scores. The core lab data must be de-identified and labeled with subject number and date of procedure and then forwarded to the core lab. Refer to Core Laboratory Manual for additional information.

11.8 Trial Termination/Investigational Site Termination

MIVI Neuroscience, Inc. may terminate this trial at any time. MIVI Neuroscience also reserves the right to terminate an Investigational Site if that site fails to comply with the Clinical Trial Agreement, EU Regulations, submits falsified or unreliable data, or misuses the device.

11.9 Trial Registration

This study will be registered on www.clinicaltrials.gov.

12 RECORDS AND REPORTS

12.1 Essential Documents

Investigators are required to provide MIVI Neuroscience the following information prior to subject consent at the investigational site:

- Copy of investigators' curriculum vitae [principal investigator and co-investigator(s)]
- Signed Clinical Trial Agreement
- Copy of the EC approval letter and
- EC approved informed consent document
- Appropriate training documentation

12.2 Investigator Records

The investigator is responsible for the preparation, review, and retention of the records listed below:

- All pertinent correspondence that pertains to the investigation
- Signed and dated informed consent forms
- Serious adverse event information
- Medical history (medications etc.), medical records, progress notes, hospital charts, etc.
- A record of each patient's exposure to the investigational device (e.g. implant, follow up, etc.)
- Documentation of any deviation from protocol
- Signed Investigator's Agreement and curriculum vitae
- The protocol and any amendments

Records are pertinent to regulatory authority's inspection and must be retained for a minimum period of (2) years after the latter of two dates: 1) the date on which the investigation is terminated or completed, or 2) as long as local regulatory authorities in countries conducting the research study require retention.

12.3 Sponsor Records

MIVI Neuroscience or its designee will maintain the following records:

- all pertinent correspondence which pertains to the investigation,
- device shipment records and disposition logs (if applicable),
- signed Clinical Trial Agreements and curriculum vitae for each Investigator,
- adverse events and complaints,
- all data forms, prepared and signed by the investigators, received source documentation and core lab reports,
- investigational plan and report of prior investigations,
- site monitoring reports, and
- final reports.

13 PROTOCOL DEFINITIONS

13.1 Abbreviations

ADE	Adverse device effect; also UADE (unanticipated adverse device effect)
AE	Adverse Event; also SAE (serious adverse event)

ASPECTs	Alberta Stroke Program Early CT score
BP	Blood Pressure
CA	Competent Authority
CEC	Clinical Events Committee
CRF/eCRF	Case Report Form/electronic Case Report Form
CT/CTA	Computerized Tomography / CT Angiography
CV	Curriculum Vitae
EC	Ethics Committee
ENT	Embolization to a new territory
ICF	Informed Consent Form
(s) ICH	(Symptomatic) intracranial hemorrhage
ICH GCP	International Conference on Harmonization E6 Guidelines for Good Clinical Practice
IFU	Instructions For Use
LR/LAR	Legal Representative/ Legally authorized representative
MRI/ A	Magnetic Resonance Imaging/ Angiogram
mRS	modified Rankin Score
NIHSS	National Institutes of Health Stroke Scale
SAE	Serious Adverse Event
mTICI	Modified Thrombolysis in Cerebral Infarction (Scale)
tPA	Tissue Plasminogen Activation
UADE	Unanticipated Adverse Device Effect

13.2 Study Endpoint Definitions

Primary Performance Endpoint of successful revascularization defined as mTICI flow 2b-3 in the target vessel at the end of the procedure as determined by in independent Angiographic Core Laboratory.

Primary Safety Endpoint of Symptomatic Intracranial Hemorrhage (SICH) –
Defined according to ECASS II definition of any apparently extravascular blood in the brain or within the cranium associated with clinical deterioration, as defined by an increase of 4 points or more in the score on the National Institutes of Health Stroke Scale (NIHSS), or that leads to death and is identified as the predominant cause of the neurologic deterioration. This endpoint is assessed from data obtained within 24 hours post procedure (0-36 hrs).

Secondary Endpoints

- Successful revascularization defined as mTICI 2b-3 with the Q Aspiration Catheter as determined by an independent Angiographic Core Lab.
- Embolization to a new neurovascular territory during the procedure as determined by the Core Lab
- Good functional outcome measured by Modified Rankin Score of 0-2 at 90 days
- All-cause mortality at 90 days

13.3 Protocol-specified and Other Definitions

Device Failure
The device is used in accordance with the IFU but does not perform according to IFU and negatively impacts the treatment.

Device Malfunction
An unexpected change to the device that is contradictory to the IFU and may or may not affect device performance.

Rescue therapy
The use of another mechanical thrombectomy device, mechanical pump aspiration, intracranial [stenting, or initiation of intra-arterial tPA during the procedure after a failure to recanalize with the study device.

Modified TICI Flow
Thrombolysis In Cerebral Infarction scale (classification of cerebral artery flow) -

0 No perfusion or anterograde flow beyond site of occlusion
1 Penetration but not perfusion. Contrast penetration exists past the initial obstruction but with minimal filling of the normal territory
2 Incomplete perfusion wherein the contrast passes the occlusion and opacifies the distal arterial bed but rate of entry or clearance from the bed is slower or incomplete when compared to non-involved territories
  - 2A Some perfusion with distal branch filling of <50% of territory visualized
  - 2B Substantial perfusion with distal branch filling of ≥ 50% of territory visualized
  - 2C Near complete perfusion except for slow flow in a few distal cortical vessels, or presence of small distal cortical emboli
3 Complete perfusion with normal filling of all distal branches

14 INVESTIGATIONAL PLAN HISTORY

Revision	Date	Change(s)
DRAFT	OCT2018	Changed study type from a prospective, single arm study to an observational study.
A	14MAR2019	Initial Release
B	01AUG2019	Changed the FU visit from office to either office or telephone visit, deleted NIHSS at FU visit, minor edits for clarity, and added mTICI 2C definition.

15 REFERENCES

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