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Abstract

OR1.1

Stroke Programs in Bahrain: Two Years' Experience and Expectations

Mohamed Elmahdy Ibrahim[1,2]

[1]Faculty of Medicine, Cairo University, Cairo, Egypt, [2]King Hamad University Hospital, Muharraq, Bahrain.
E-mail: mmalmahdy@yahoo.com

Objectives: The time factor is a critical parameter in the evaluation of the process and success of stroke programs. Door-to-computed tomography (CT) interpretation should be <45 min. Door to treatment should be <60 min. In our institution, we reached a door-to-treatment time as short as 20 min. **Methods:** On February 8, 2018, the first stroke code was activated in King Hamad University Hospital in Bahrain; to date, 565 stroke codes were activated. For patients presenting with acute neurological deficit to the emergency department, a total of 66 (11.7) patients were treated with revascularization therapy; patients were treated with only intravenous thrombolysis (34, 6.02%), only mechanical thrombectomy (17, 3%), or both (15, 2.65%). **Results:** In our institution, we reached a door-to-treatment time as short as 20 min. **Conclusion:** In our program, time management is an important factor of success in the management acute cerebrovascular stroke.

OR1.2

Safety of Carotid Revascularization without Embolic Protection Device: Preliminary Results and Experience in Pakistan

Qasim Bashir, Mahnoor Mohydin[1], Javed Iqbal

CMH Lahore Medical College, [1]Lahore Medical and Dental College, Lahore, Pakistan.
E-mail: qbashir@hotmail.com

Objectives: To assess the safety and clinical efficacy of carotid artery stenting with and without embolic protection device (EPD) for patients with symptomatic and asymptomatic carotid disease. **Methods:** We retrospectively reviewed our patient data from 2014 to December 2018 and present 100 patients with both symptomatic (≥50% occlusion by digital angiography [DA], ≥70% by ultrasound, computed tomography [CT], and magnetic resonance angiography [MRA]) and asymptomatic (≥60% by DA, ≥70% by ultrasound, ≥80% by CT and MRA) with extracranial carotid stenosis undergoing carotid stenting/angioplasty revascularization. All symptomatic patients had either experienced recurrent transient ischemic attacks (TIAs) or one or more stroke attacks and were treated with the best medical management and followed up postprocedure as per the Carotid Revascularization Endarterectomy versus Stenting Trial criteria. The primary endpoints were periprocedural any stroke, myocardial infarction (MI) or death, and ipsilateral stroke during the follow-up period. **Results:** Of the 100 patients, 60 were males and 40 were females; the mean age was 67 years. Eight percent were asymptomatic and 92% were symptomatic, with mean stenosis of 70%. There was no difference in age or cardiovascular risk factors. EPD was used in only eight cases (14.8%). Minor stroke rate during the first 30 postoperative days was 1% (1 patient) with EPD and fatal stroke secondary to hyperperfusion syndrome in 2% (2 cases) with no MI. There was no difference in outcomes in those under 69 years of age or older than 70. No stroke occurred during the median 2 years of follow-up. **Conclusion:** Carotid revascularization with stenting and angioplasty in experienced hands is both safe and effective for patients with both symptomatic and asymptomatic carotid stenosis. Our results are comparable to those of previously reported major trials and well within the complication thresholds suggested in the current guidelines for both symptomatic and asymptomatic patients.

OR1.3

Endovascular Management of Ruptured Intracranial Arterial Aneurysms: Our Experience in the Last 2 Years

Asma Souid, Nadia Hammami Hmaied, Rym Sebai, Cyrine Drissi, Sonia Naji, Mohammed Ben Hamouda

National Institute of Neurology Mongi Ben Hmida, Tunis, Tunisia.
E-mail: asmasouid5@gmail.com

Objectives: Ruptured intracranial arterial aneurysms are a diagnostic and therapeutic emergency. Endovascular treatment, consisting of conventional coiling with or without balloon remodeling, is becoming the first adequate treatment done promptly to avoid a recurrent rupture and improve patient outcome with a low thromboembolic and hemorrhagic risks. The objective of our study is to assess the feasibility, safety, and efficacy of endovascular coiling in our experience in the last 2 years. **Methods:** We carried a 2-year retrospective study (between January 2017 and January 2019) of 98 patients who were hospitalized for a ruptured intracranial arterial aneurysm and underwent an endovascular embolization using conventional coiling. **Results:** The study group of the patients included 43 men (44%) and 55 women (56%) with a mean age of 59 years. Twenty-nine patients (30%) had arterial hypertension. Headaches and vomiting were the main symptoms present together in 29 patients (30%). Fisher score varied from I to IV with a predominant IV score in 44 patients (49%). As for the World Federation of Neurological Surgeons score, it varied from I to V with a predominant I score in 74 patients (74%). Primary complications seen at the time of hospitalization were observed in 20 patients (20%): 10 patients (10%) had hydrocephalus and 11 (11%) patients had a neurologic deficit. Aneurysms were diagnosed using computed tomographic angiography in 39 patients (40%). Angiographic analysis showed that aneurysms occurred mainly on A1A2 junctions with the following distribution. Three patients had concomitant arteriovenous malformations. Intracranial arterial vasospasm was observed in angiography in 26 patients (27%), explaining the use of 2–8 mg of Nimotop. Balloon remodeling technique was used in 22 patients (22%). 11 (50%) of the latter had a carotid artery aneurysm. With regard to coiling, in the 86 patients (88%) where data were available for both coiling and aneurysmal measurements, we present the distribution of number of coils according to the aneurysmal measurements Figure 2. In 10 patients (10%), a residual neck was left. On case of aneurysmal

rupture during the procedure, was noted (1%) with intracranial hematoma. Only one patient (1%) had intracranial arterial microemboli during the procedure. **Conclusion:** Endovascular coiling of ruptured intracranial arterial aneurysms is safe and effective. It is used as a first-line treatment in emergency. Going forward, we suggest the establishment of a result predicting score in patient having endovascular treatment for ruptured aneurysms.

OR1.4

Flow Diverter as a Sole Treatment for Internal Carotid Termination Aneurysms

Mostafa Mahmoud, Ahmed Altaher, Mostafa Farid, Wessam Sherin, Ahmed Elserwi, Amr Abdelsamad, Farouk Hassan[1]

Ain Shams University, [1]Cairo University, Cairo, Egypt.
E-mail: mmahmoud19170@gmail.com

Objectives: Treatment of internal carotid artery termination region (ICATR) aneurysms including aneurysms of the true ICA terminus, those inclined on the proximal A1 or M1 segments or at the most distal prebifurcation ICA segment, is often challenging for either surgical or endovascular ways. Few reports had discussed flow diversion as a therapeutic option for this group. In this study, we present the efficiency and safety of flow diversion in our cohort as well as in 27 patients reported in the English literature. **Methods:** This is a retrospective study analyzing extraluminal flow diversion in treating ICATR aneurysms. Patients' demography, procedural technical description, and angiographic and clinical follow-up were recorded. **Results:** The mean age was 49 years. Seven patients harboring eight aneurysms in the ICATR have been treated with flow diversion. Five aneurysms were inclined on the proximal A1 segment and three aneurysms were located at the most distal prebifurcation segment. There were four female patients included in this study. The mean aneurysm maximum diameter was 5.3 mm. Two cases presented with acute subarachnoid hemorrhage, four presented with headache, and one had family history of subarachnoid hemorrhage. All patients except one underwent angiographic follow-up. Karman–Byrne occlusion scale was used to determine the occlusion rate. For six patients with a documented angiographic follow-up, all of them had a Class IV occlusion score. No permanent or transient neurological or nonneurological complications were encountered in this study. **Conclusion:** Treating ICATR aneurysms using flow diversion was feasible with promising angiographic occlusion rate. Further studies are needed to analyze long-term clinical and angiographic results.

OR1.5

Mothership and Drip and Drive Neurointerventional Models Are Better Than Drip and Ship Model in Bahrain Stroke Services

Mohamed Elmahdy Ibrahim[1,2]

[1]Faculty of Medicine, Cairo University, Cairo, Egypt, [2]King Hamad University Hospital, Muharraq, Bahrain.
E-mail: mmalmahdy@yahoo.com

Objectives: In the new era of novel stroke management, there is increasing demand for neurointerventional expertise. In the current study, we compare the best available options for interventional stroke care models in Bahrain. **Methods:** Since February 8, 2018, the first stroke code was activated in King Hamad University Hospital in Bahrain; to date, 565 stroke codes were activated. Thirty-two patients received mechanical thrombectomy alone or with intravenous tissue-type plasminogen activator (IV TPA); of them, there are patients referred from primary stroke centers where they received IV TPA in the sending hospital if they arrived within the thrombolysis time window following the Drip and Ship Model. **Results:** Before the initiation of the primary stroke centers 1 year after our program, the patients were sent directly to our institution in a Mothership Model, and now, since the start of the other primary stroke programs, there are some noticeable transfer delays, namely related to process of transfer, lack of workforce, and other factors. **Conclusion:** There is a strong need to develop either the interventional services in the primary stroke centers to develop into comprehensive centers hence a Mothership Model or better develop the Drip and Drive model to overcome delays and costly requirements of Drip and Ship Model.

OR1.6

Zone 3 Thoracic Endovascular Aortic Repair on Short Neck Aortic Injury: Apply on Traumatic Situations

Seong Ho Kim, Yohan Kwon[1], Je Hwan Won[1], Jinoo Kim[1], Jonghwan Moo[1]

Seoul National University Hospital, Seoul, [1]Ajou University Hospital, Suwon, South Korea.
E-mail: evazzang23@gmail.com

Objectives: Thoracic endovascular aortic repair (TEVAR) offers the benefit of precision and immediacy in attending to the target lesion compared to conventional surgical options. The most frequent location of blunt aortic injury is isthmus. In the present analysis, we aim to address the safety and efficacy of TEVAR in traumatic blunt aortic injury (TBAI), confined at short neck (<2 cm) aortic injury. **Methods:** The retrospective analysis was conducted in this single-center study of consecutive patients presenting with TBAI. We reviewed 14 consecutive patients treated for TBAI from December 2011 to April 2019 and calculated the neck length based on their computed tomographic (CT) and angiographic findings by three interventional radiologists. Medical records and follow-up imaging acquired 1 and 3 months after the procedure were reviewed. **Results:** A total of 14 patients were diagnosed with short neck TBAI. Locations of involvement lesions were aortic isthmus in all cases. All 14 patients were classified above BAI grade 2. Age range of the patients varied from 29 to 75 years due to traumatic situations. The mean neck length was 1.78 cm, from left subclavian orifice margin to damaged lesion. The mean follow-up duration was 18.8 months. Overall mortality was 6.6%. A total of three complications occurred, type Ia endoleak. The two of them were self-limited at follow-up CT findings, and the third underwent additional treatment as intentional left subclavian artery sealing with chimney stent-graft insertion. **Conclusion:** Our results suggest the safety and efficacy of TEVAR, even in short neck TBAI. Additional prospective studies and longitudinal follow-up are needed to confirm its long-term effectiveness.