

**Participants:** Patients who underwent open Heart surgery from July 23, 1994 to July 23 2014.

**Results:** There were 423 adult patients that underwent Open-heart surgery in the span of 20 years in this tertiary hospital. Coronary Artery Bypass was the most common procedure done with a total of 327 (77.3%), followed by Mitral Valve Repair with a total of 74 (17.49%). Fourteen patients (4%) patients developed postoperative neurologic deficits.

Majority were male patients 11 (79%) and 3 (21%) were females. Among those with neurologic deficits, the mean age was 59.57 years old  $\pm$  10.51. Operations done were CABG (64%), MVR (29%), and AVR (7%).

Preoperative demographics were noted. Majority had a NYHA for CHF of functional Class II. About 57% had Sinus Rhythm, 21% for both Sinus Tachycardia and Atrial Fibrillation. The average Ejection Fraction was  $57.86 \pm 13.32$ . All of the patients who had neurologic deficits had Angina Pectoris on admission.

The average Cross Clamp time was  $1.86 \pm 0.62$  hours and a bypass time average of  $2.34 \pm 1.28$  hours. Postoperative outcomes of patients that developed neurologic deficits were reported. Among the 14 patients 50% of which developed Major neurologic deficits, 21% developed Seizure and deterioration of intellectual function. Time of onset of neurologic complications had an average of  $10.23 \pm 13.85$  hours.

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Neuro Critical Care 1

**High altitude neurophysiology applied knowledge: the Hanak project in Ecuador**

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**Background:** About half of Ecuadorians live at various levels of altitude. Brain function is affected by altitude changes, but little is known regarding the factors that lead to such abnormalities. Unraveling these will have significant implications for patients with neurocritical care diseases in Ecuador.

**Objectives:** 1. To carry out 4 research proposals over a period of 3 years; 2. To collaborate with and train local Ecuadorian investigators in the intricacies of clinical neurosciences research.

**Materials and methods:** HANAK project will be a multidisciplinary research collaboration between the Baylor College of Medicine (BCM) in Houston, TX (USA) and the Government of Ecuador (Yachay/Senescyt).

**Results:** we will present at the WCN the methods and scientific rationale for the 4 research proposals that are funded for this project: 1. Prospective Registry of Clinical Management and Long-Term Outcomes of Patients with Subarachnoid Hemorrhage and Intracranial Hemorrhage in Latin America at various levels of altitude; 2. The cerebral effects of ascent to high altitude: non-invasive multimodality brain monitoring; 3. Pressure Reactivity Index (PRx) Monitoring in the Management of Severe Traumatic Brain Injury in Quito and Guayaquil; and 4. Study of Atherosclerosis in Ecuador: influence of varying altitude levels.

**Conclusions:** Understanding brain behavior at various levels of altitude will lead to better and more targeted treatments. Current therapies are based in clinical studies that have been carried out at sea level. In addition, the research infrastructure for clinical neuroscience research in Ecuador will improve.

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Neuro Critical Care 1

**Developing neurocritical care in Ecuador**

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**Background:** Acute neurological emergencies (particularly stroke and traumatic brain injury) are the main cause of death in Ecuador. There are currently no standardized training programs for the pre-hospital, hospital, and post-hospital management of neurocritical care patients in Ecuador.

**Objective:** To develop a program for the evaluation and management of neurological emergencies in Ecuador.

**Materials and methods:** this neurocritical care training and educational program will be a multidisciplinary collaboration between the Baylor College of Medicine (BCM) in Houston, TX (USA) and the Government of Ecuador (Yachay/Senescyt and Ministry of Health). The initial pilot project will be carried out at Hospital Eugenio Espejo, which is the largest public hospital in Quito and will be extended to other public hospitals in Ecuador.

**Results:** we will present at the WCN details of the various phases of the proposal: Phase 1: establishment of cooperative agreements (6-9 months); Phase 2: set up multidisciplinary team and written management protocols (6 months); Phase 3: education and training of Ecuadorian healthcare professionals (physicians and nurses) and protocol implementation (12-18 months); Phase 4: pre and post-program implementation evaluation (6 months prior and 12 months after); and Phase 5: annual evaluation, national certification process, national training programs, and telemedicine program development (5-10 years).

**Conclusions:** This educational program will result in the following outcomes: prompt evaluation of neurological emergencies and immediate transport to specialized centers; implementation of national protocols; improved clinical outcomes; and improved public education.

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Neuro Critical Care 1

**Characteristics of a novel lithotripsy shock wave blast traumatic brain injury**

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**Background:** Many of the suggested methods used to study the effect of blast traumatic brain injury (bTBI) are impractical requiring for laboratory settings.

**Objective:** We present a novel method to induce bTBI using Shockwave (SW) lithotripsy in rats with histological, angiographic, and behavioral outcomes over the course of injury and recovery similar to those observed in clinical settings.

**Material and methods:** Anesthetized rats were placed on a lithotripsy machine to deliver 5 SW pulses to the right frontal cortex of each