

INTRA HOSPITAL CARDIAC ARREST IN THE ELDERLY: INSTITUTION OF A REGISTRY AT THE INRCA HOSPITAL

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Objective: Intra-hospital cardiac arrest (IHCA) incidence is 0.175/events/bed/year (1-5 cases/1000 admitted pts). Collecting and processing homogeneous and uniform data (Utstein style) is mandatory to investigate the matter in a reproducible way, but often difficult. In elderly pts, difficulties are even greater, mostly due to the lack of specific IHCA registries. Aim of this paper is to define a set of data that should be recorded at our institution whenever a case of IHCA happens on older than 65y pts.

Methods: Using the key-words “Utstein style”, “IHCA registry”, “IHCA in the elderly” and “IHCA outcome” we reviewed the literature for the period May 1997- January 2009. Twenty studies were identified, 5 of them containing useful elements for the definition of a specific registry.

Results: The lack of specific IHCA registries to be adopted for elderly pts was confirmed. A set of data for an IHCA registry, conforming to the statement adopted in 1997 internationally and simplified by the ILCOR Task Force in 2003, was identified. A model of registry to be implemented in our institution was then defined. Table 1 reports the data to be included.

Table 1: Data to be recorded on a geriatric IHCA registry

General data	name, age, sex, hospital admission date
Event causing the IHCA	h, site, witnesses, cardiac rhythm at the esordium
Anamnestic data	comorbidity
Aetiology	Predisposing and precipitating factors
Pre ALS (Advanced Life Support) care	Starting/duration of the treatment
Prognosis	ICU admittance, end of CPR
In-hospital outcome	GCS (Glasgow Coma Score)
1-year outcome	survival, sequelae

Conclusion: Processing these data and comparing them with data from the overall literature on IHCA will allow a better understanding of the outcome after IHCA in elderly pts, with possible improvements in the intra-hospital emergency system in the future.

THROMBOLYSIS FOR PATIENTS >80 YEARS OLD IN ACUTE STROKE

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Background: The strongest independent risk factor for stroke is age, and a significant proportion of patients whom are afflicted with stroke tend to be over the age of eighty years old. However, NICE guidelines have limited the use of thrombolytic therapy to those between the ages of 18-80 years old. This is due to the higher theoretical risk of intracranial haemorrhage which may ensue following thrombolytic therapy in patients >80 years old. Due to this, the implementation of thrombolytic therapy is affected by the variable of age.

Objective: We aim to evaluate these studies and thus consider the use of IV thrombolytic therapy beyond the age range of 18-80 years old as advised by the UK NICE guidelines.

Methods: We reviewed past and present literature evaluating the use of thrombolytic therapy in patients of different ages. We assessed their strength and their weaknesses and critically evaluated their results and findings. We then postulated our own conclusion based on our evaluation and re-interpretation of aforementioned literature.

Results: Across a multitude of studies, we found the use of thrombolytic therapy in patients >80years old as being highly beneficial and effective in the management of acute stroke. We did not find a higher incidence of intracerebral haemorrhage when thrombolytic therapy was delivered to patients >80 years old.

Conclusions: In view of this, it is suggested that the administration of intravenous thrombolysis should not be influenced on the basis of age. Hence, intravenous thrombolysis should be given to patients >80 years old in the acute setting of stroke.

THE EXPANSION OF THROMBOLYTIC THERAPY FOR ACUTE ISCHEMIC STROKE BEYOND THE 3 HOUR TIME WINDOW

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Objective: We intend to evaluate the possible expansion of the use of thrombolytic therapy in acute ischemic stroke beyond the 3 hour time window.

Methods: We reviewed past and present literature evaluating the use of thrombolytic therapy in patients within the 3 hours time limit and beyond the 3 hour time limit against both alteplase and placebo. We assessed their strength and their weaknesses and critically evaluated their results and findings. We then postulated our own conclusion based on our evaluation of aforementioned literature.

Results: We found across the studies a significant improvement in stroke patients who received thrombolytic therapy beyond the 3 hour window although the treatment is not as efficacious when compared to within the 3 hour window. Studies also showed no significant increase in mortality beyond the 3 hour window although some studies have showed an increase in intracerebral haemorrhage. Studies that have not showed a benefit beyond 3 hours have had flaws especially in measurement of end points.

Conclusions: We conclude that time should not be used as a sole discriminative factor in the administration of thrombolytic therapy because studies have not shown a significant increase in mortality beyond the 3 hour window. Factors such as early ischemic changes in CT scan should be used as discriminative factors in administering thrombolytic therapy. We also conclude that the time window should be expanded to 4.5 hours for there to be significant improvement in the long term for stroke patient. Further extension of the time window requires more thorough studies.

PROSPECTIVE EVALUATION OF DELIRIUM IN CARDIAC SURGICAL PATIENTS IN THE INTENSIVE CARE UNIT

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Objective: Evaluate the incidence and risk factors associated with delirium in cardiac surgical patients while exploring the length of hospital stay, mortality and morbidity in these patients diagnosed with delirium.

Methods: Delirium assessment utilizing the Confusion Assessment Method (CAM-ICU) were performed on patients undergoing cardiac surgery in the intensive care unit. Assessments from approximately 125 patients were collected from the Mount Sinai Cardio Thoracic ICU. Patient charts and records were reviewed and delirium assessments were conducted on all patients postoperatively in the ICU. Different variables (age, type of surgery, length of anesthesia, etc) were assessed to see if these factors have an effect on which patients get delirium post-cardiac surgery.

Results: The incidence of delirium was approximately 35% in post-cardiac surgical patients. Longer length of hospital stay, increased morbidity and mortality and increased time on the ventilator were noted.

Conclusions: Many risk factors reportedly contribute to the incidence and severity of delirium in the critical care setting. There is a paucity of data, however, regarding the incidence of postoperative ICU delirium and postoperative risk factors in the cardiac surgical patient population. Future studies need to examine delirium in this specific population, with an increase emphasis on caring for our geriatric patients.

THE WORLD'S FIRST TWENTY-FIVE HEART TRANSPLANTS: IS THERE HOPE FOR THE ELDERLY?

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Objective: Revisit the role of the first twenty-five heart transplants and their outcomes worldwide, as well as recognize the impact of age on heart transplantation outcome.

Methods: Two recent articles commemorated the first human-to-human heart transplant which was performed at Groote Schuur Hospital in Cape Town, South Africa on December 3, 1967. This project revisits the first 25 human-to-human heart transplants and their outcomes (table 1). They were carried out in 9 countries on four continents. Twelve of the transplants were performed in the United States and 5 of these were performed by Dr. Cooley's team at St. Luke's Hospital in Houston, Texas.

Results: Of the first twenty-five recipients, 22 were men and 3 were women with ages ranging from 18 days of life to 66 years of age. Of the donors, 20 were men and 5 were women with ages ranging from 2 days of life to 58 years of age. Outcomes were variable and post-transplant survival ranged from 3 hours to 592 days. There were two patients who lived longer than one year and five patients died within the first 24 hours of receiving a transplant. The most common causes of death were graft rejection and ventricular failure. Thirteen out of the first 25 cases were greater than 50 years old and three cases were older than 60 years old.

Conclusions: According to a recent report by the Scientific Registry of the International Society of Heart and Lung Transplantation, 3114 heart transplants were performed at more than 200 centers worldwide between July 1, 2006 and June 30, 2007. The total number of heart transplants as of June 30th 2007 was 80,106. In addition, as the percentage of elderly patients undergoing transplantation has increased over the last decade, there is a lack of uniform agreement on transplantation in the geriatric population. Forty years later, we recognize the role that hard work in research, clinical application, and the first 25 cases played in the advancement of cardiac transplantation.

FOCUSED TRANSTHORACIC ECHOCARDIOGRAPHY BY ANESTHESIOLOGISTS IN PERIOPERATIVE SETTING

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Objective: To use a portable echo platform to validate the use of a "focused transthoracic echocardiography examination" by staff anesthesiologists in the perioperative setting.

Methods: IRB approval and informed consent obtained on 50 patients. Inclusion criteria consisted of age greater than 50, undiagnosed murmur, history of rheumatic fever, SBP greater than 180, history of CAD, and patients scheduled for thoracic or peripheral vascular procedures. A "focused echo" was obtained using a GE Vivid i machine to evaluate aortic and mitral valve disease, global left ventricular function, and image quality. The examiner was blinded as to which of the inclusion criteria was met for study enrollment. After the "focused echo", the patients received a full transthoracic echo (TTE) in the Echo Lab. Valve function was graded on a four point scale with 0 being normal, 1 mild dysfunction, 2 moderate dysfunction, and 3 as severe disease. Global left ventricular function was graded with 0 as normal function, 1 mild dysfunction, 2 moderate, and 3 as severe dysfunction. Each criteria was scored for the "focused echo" and full TTE.

Results: Statistical analysis was performed by the StatXAct (version 8) software package and a weighted kappa coefficient of agreement obtained. Aortic stenosis was found in 7 patients with a kappa coefficient of 0.84 (very good correlation). Aortic valve insufficiency was found in 9 patients with a kappa coefficient of 0.48 (moderate agreement). Thirteen patients had mitral valve insufficiency with a kappa coefficient of 0.65 (good agreement). Left ventricular function had a kappa coefficient of 0.49 (moderate agreement). No cases of mitral valve stenosis were noted.

Conclusions: Both the full TTE and "focused echo" appeared to have adequate agreement for aortic valve stenosis, aortic valve insufficiency, mitral valve regurgitation, and global left ventricular function. The strongest agreement was for aortic stenosis. Anesthesiologists should embrace not only transesophageal echocardiography, but also transthoracic echocardiography to evaluate patients in the perioperative setting to assist in management and formulation of an anesthetic plan.

OUTCOME OF GERIATRIC PATIENTS UNDERGOING ELECTIVE SURGICAL REVASCULARIZATION ASSESSED BY INTRAOPERATIVE TRANSESOPHAGEAL ECHOCARDIOGRAPHY

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Objective: Aim of the study was to evaluate the left ventricular function of the geriatric patients undergoing elective CABG with cardiopulmonary bypass (CPB) assessed by intraoperative transesophageal echocardiography (IOTEE).

Methods: 55 patients (mean 66 ± 9 y), mean Euro SCORE: 4.5 ± 2.9 scheduled for elective CABG in CPB. Geriatric patients (≥ 70 years) constituted 38% of whole study group (21 persons). IOTEE was done after induction of anesthesia (stage 2), 5 and 30 minutes after weaning from CPB (stage 3 and 4 respectively). Intraoperative parameters of LV function and volume (EDV/BSA) and the data obtained by transthoracic echocardiography (TTE) performed before (stage 1) and 30 days after surgery (stage 5) were compared between geriatric patients and the remaining, younger population.

Results: Baseline EF was lower in geriatric patients in comparison with younger group but the difference was not statistically significant. In the whole study group significant depression of LVEF was found after induction of anesthesia (decline from 52.2 ± 11.2 to 49.8 ± 11.5 , $p=0.003$). Such decrease of EF was not observed in patients older than 70 years.

In a whole population subsequent improvement of LVEF was noticed at 1 month FU ($p=0.01$).

However the highest degree of improvement was noticed in the geriatric patients ($p < 0.001$).

Only one patient died (aged 66). Complex surgical procedures, EF $< 50\%$, long cross-clamping time and high EuroSCORE but not older age were selected as a factors predicting inotropic support at separation from CPB.

Conclusions:

IOTEE during elective CABG allows to control difficult stages of surgical procedure and to select patients at risk of perioperative hemodynamic deterioration. In spite of higher perioperative risk related to age geriatric patients gained the greatest benefit after revascularization.