

ICCU 2023

23rd International Congress on
Cardiovascular Updates

Abstract Book

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انجمن آترواسکلروز ایران
Iranian Society of
Atherosclerosis



ICCU

International Congress on
Cardiovascular Updates





WELCOME TO ICGU2023

Dear Colleagues and Guests,

It is our pleasure to extend you our very warm welcome on behalf of the Iranian Society of Atherosclerosis. We are grateful that you have accepted our invitation to attend the “23rd International Congress on Cardiovascular Updates ” in Tehran. Year after year, this congress offers us the opportunity to renew contacts and hold discussions with delegates from all over the world on the pertinent issues of healthcare.

The speeches and events outlined in the congress agenda are arranged to cover a wide range of core topics in the fields of cardiovascular diseases.

We wish all our guests, whether from Iran or visiting from abroad, a productive and successful congress.

We also wish you a pleasant stay in Tehran. We thank all our sponsors, whose support made this significant gathering possible.

As we stand here surrounded by colleagues, humbled by what we’ve accomplished, yet inspired by hopes and dreams, hopes and dreams we wish to turn into reality. We hope to be able to offer better patient care and make advancements in the field. Together we can draw strength from our bonds and learn from one another to expand our horizons.

We look forward to welcoming you in the 23rd International Congress on Cardiovascular Updates (ICCU 2023).

Sincerely,

Massoud Ghasemi, MD.
President of Congress

Masoud Eslami, MD.
Secretary of Congress

IRSA

Iranian Society of
Atherosclerosis



ICCU 2023

23rd International Congress on
Cardiovascular Updates



Massoud Ghasemi, MD
President of Congress



Mojdeh Mazidi
Executive Secretary of Congress



Masoud Eslami, MD
Secretary of Congress

Captured Moments





















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Measurement of Mitral Valve Area By Direct Three Dimensional Planimetry Compared To Multiplanar Reconstruction In Patients With Rheumatic Mitral Stenosis

Introduction

Background: Mitral valve area (MVA) measurement by three-dimensional transesophageal echocardiography (3D-TEE) has a crucial role in the evaluation of mitral stenosis (MS) severity. Three dimensional direct (3D-direct) planimetry has been proposed as a new technique to measure mitral valve area. This study aimed to compare the 3D-direct mitral valve planimetry to conventional three dimensional multiplanar reconstruction (3D-MPR) in severe mitral stenosis (MS) using 3D-TEE.

Materials and Methods

149 patients with severe MS who were referred for percutaneous transmitral commissurotomy (PTMC), prospectively recruited. All patients underwent 2D transthoracic echocardiography (2D-TTE) and 3D-TEE in a single session before PTMC. During 2D-TTE planimetry, pressure half time (PHT), and proximal isovelocity surface area (PISA) were applied to measure the MVA. Transmitral mean pressure gradient (MPG) was measured. During 3D-TEE, MVA planimetry was carried out with both 3D-direct and 3D-MPR methods. 3D-direct was applied from both atrial and ventricular views. The consistency of MVA measurements with 3D-direct, 3D-MPR, and 2D-TTE methods was statistically investigated.

Results

Our sample consisted of 109 (73.2%) women and 40 (26.8%) men. The mean age was 51.75 ± 9.81 years. The agreement between 3D-direct and 3D-MPR planimetry was significant and moderate (0.99 ± 0.29 cm² vs. 1.12 ± 0.26 cm², Intraclass Correlation = 0.716, p value = 0.001). The accuracy of the 3Ddirect method reduced significantly compared to the MPR method at MVA > 1.5 cm². The maximum difference between two methods was observed in cases with MVAs larger than 1.5 cm². MVA measured with the 3D-MPR method was significantly correlated with a 2D-TTE method, with a moderate agreement (Intraclass Correlation = 0.644, p value = 0.001). Also, 2D-TTE and 3D-direct TEE techniques yielded significantly consistent measurements of the MVA (1.06 ± 0.026 cm² vs. 0.99 ± 0.29 cm², Intraclass Correlation = 0.787, p value = 0.001); however, with a slight overestimation of the MVA by the former with a net difference of 0.06 ± 0.013 cm².

Dr. Mehrnoush Toufan

Professor, Echocardiography,
Tabriz University Of Medical Sciences,
Tabriz, Iran

Dr. Haniyeh Haniyeh Faraji Azad

Assistant-professor, Cardiology,
Tabriz University Of Medical Science,
Tabriz, Iran

Hanieh Hanieh Sakha

Doctoral-degree, Statistics,
Islamic Azad University, Tabriz, Iran

Dr. Naser Khezerlou

Assistant-professor, Echocardiography,
Tabriz University Of Medical Sciences,
Tabriz, Iran

**Conclusion**

3D-direct planimetry has an acceptable agreement with 3D-MPR planimetry at MVA less than 1.5 cm², but their correlation decreases significantly at MVA above 1.5 cm². 3D-direct planimetry underestimates MVA compared to 3D-MPR, especially at MVA above 1.5 cm². The 2D-TTE planimetry has generally acceptable accuracy, but its correlation to the 3D-TEE methods is significantly reduced in cases with moderate to severe MS (i.e. MVA > 1.0 cm²).

Keywords

measurements, three-dimensional, mitral valve, intraclass

Evaluation of the relationship between QT interval in ECG and GRACE score amount of hospitalized patients with NSTEMI

Introduction

A non-ST-elevation myocardial infarction (NSTEMI) is a major component of ACS that usually has more than twice the relative incidence compared to ST-segment elevation myocardial infarction (STEMI). Data from the International Long QT Syndrome Registry show that the risk of developing malignant arrhythmias in patients with long QT is exponentially related to the length of the QTc interval. Therefore, the aim of this study was to evaluate whether prolonged QTc can be included as a risk factor in the prognosis of NSTEMI patients.

Materials and Methods

A cross-sectional study was conducted in patients with NSTEMI diagnosis admitted to the Bu-Ali Hospital of Qazvin between April 2021 and September 2021 by census method. The QT interval was measured in the electrocardiogram at admission. The documented grace score was calculated and its relationship with the modified QTc interval was estimated using the Hodges formula. Finally, the relationship between QTc and GRACE score was investigated as a prognostic factor in ACS patients. Relationships were assessed by using T-test and chi-square test.

Results

Total of 60 patients (31.7% females, 68.3% males) with mean age of 63 ± 12.7 years were evaluated. Most of patients (68.3%) were at low risk regarding Grace score category. In evaluating the relationship between QTc in the electrocardiogram at admission with total GRACE score, the Pearson correlation results were significant and there was a positive relationship between these two factors ($R=0.497$, $p<0.001$).

Conclusion

In this study, a significant relationship was observed between QTc of patients and GRACE Score. It seems to use patients' QTc as a predictive factor of patients' mortality.

Keywords

NSTEMI, GRACE, Electrocardiogram, ECG

Fateme Godarzi

Doctoral-degree, Cardiology, Qazvin
University Of Medical Science, Qazvin, Iran

Samira Dodange

Assistant-professor, Cardiology, Qazvin
University Of Medical Science, Qazvin, Iran



Clinical characteristic and imaging findings of post-infarction left ventricular pseudoaneurysm versus aneurysm: a pooled analysis of 21,472 patients

Elmira Jafari Afshar

Doctoral-degree, Cardiovascular Research Center, Alborz University Of Medical Sciences, Karaj, Iran

Parham Samimisedeh

Doctoral-degree, Cardiovascular Research Center, Alborz University Of Medical Sciences, Karaj, Iran

Amir Tayebi

Doctoral-degree, Cardiovascular Research Center, Alborz University Of Medical Sciences, Karaj, Iran

Vahid Shahnava

Doctoral-degree, Cardiovascular Research Center, Alborz University Of Medical Sciences, Karaj, Iran

Aryan Madady

Doctoral-degree, Cardiovascular Research Center, Alborz University Of Medical Sciences, Karaj, Iran

Hadith Rastad

Assistant-professor, Cardiovascular Research Center, Alborz University Of Medical Sciences, Karaj, Iran

Neda Shafiabadi Hassani

Doctoral-degree, Herrington Heart And Vascular Institute, University Hospitals Cleveland Medical Center, Ohio, USA

Introduction

Left ventricular pseudoaneurysm (LVPA) is a rare but life-threatening complication of myocardial infarction (MI). Differentiation of LVPA from left ventricular aneurysm (LVA) remains a challenge but is imperative for timely management. We summarized and compared clinical and imaging findings of post-MI LVPA and LVA to distinguish them from each other.

Materials and Methods

We performed a comprehensive search of the literature in databases. In both LVA and LVPA, individual-level patient data (IPD) and aggregated-level data (AD) studies were combined through a two-stage analysis method.

Results

We identified 379 eligible articles on LVPA (N= 504 patients) and 120 on LVA (N= 20,968). LVPA patients had a shorter mean time interval from MI to diagnosis than LVA (5.1 vs. 27.8 months). At presentation, while 33.8% (95% CI: 22.1, 46.0) of patients with LVA had arrhythmia, only 1.0% (95% CI: 0.0, 2.9) of LVPA patients presented with this symptom. LVPA compared to the LVA group, more frequently had ST-segment elevation (43.2% Vs. 28.6, respectively) but less frequently ECG signs of the old MI (42.2% Vs. 61.9). Echocardiography showed a lower diagnostic value in LVPA than LVA (Sensitivity: 81.4% Vs. 97.5%). Contrary to LVA, LVPA is mainly located on posterior and inferior segments based on echocardiography evaluations. A higher percentage of LVPA compared to the LVA group died during hospitalization (13.8% vs. 4.7%) or after discharge (17.5% vs. 9.0%).

Conclusion

LVPA is mainly located on the posterior and inferior, and LVA is on the anterior and apical segments. On cardiac MRI, pericardial LGE may suggest the presence of LVPA rather than LVA in suspected patients.

Keywords

LVPA LVA Myocardial infarction

Effect of vitamin C on coronary perfusion indices, short and long-term outcomes of STEMI patients undergoing primary percutaneous coronary intervention: A randomized double blind clinical trial

Introduction

No-reflow phenomenon is one of the main complications of percutaneous coronary intervention (PCI). Some studies have mentioned that depletion of antioxidants and increasing free radicals due to endothelial inflammation and post PCI induced oxidative stress might have a prominent role in no-reflow phenomenon. In this study, we aimed to determine the impact of vitamin C, as an antioxidant, on myocardial perfusion indices, 30-day and long-term major adverse cardiac events (MACE).

Methods: In this randomized double blind, placebo-controlled trial, 265 patients undergoing primary PCI, were randomly divided in to two intervention (n=131) and no-intervention (n=134) groups. The intervention group received 3 gr intravenous bolus of vitamin C at the emergency ward followed by 100 mg intracoronary

Materials and Methods

In this randomized double blind, placebo-controlled trial, 265 patients undergoing primary PCI, were randomly divided in to two intervention (n=131) and no-intervention (n=134) groups. The intervention group received 3 gr intravenous bolus of vitamin C at the emergency ward followed by 100 mg intracoronary dose after stent deployment in the catheterization laboratory. The study groups were compared in terms of procedural and follow-up data.

Results

The mean±SD age of patients was 58.49±10.53 years in intervention group and 57.13±10.44 years in control group (P=0.292). The frequency of Thrombolysis In Myocardial Infarction (TIMI) flow grade 3 and Myocardial blush grade 3 was significantly higher in the intervention group than the control group. We found a borderline statistical difference in the median of corrected Thrombolysis In Myocardial Infarction frame count (CTFC) in favor of the intervention group. The median follow-up was 51.5 months. The two study groups were similar in terms of long-term MACE and mortality.

Conclusion

It seems that vitamin C might improve coronary reperfusion indices after primary PCI with no adverse effects.

Keywords

Coronary Perfusion, MACE, Vitamin C

Seyedfarshad Sadri

Interventional Cardiology, Tehran, Tehran, Iran



Furosemide Low-dose Anti-hypertensive therapy for Systolic Hypertension in preeclampsia-affected women: a randomized controlled Trial (FLASH-Trial)

Dr Parisa Hajari

Doctoral-degree, Obstetrics And Gynecology, Iran University Of Medical Sciences, Tehran, Iran

Dr Maliheh Fakehi

Assistant-professor, Obstetrics And Gynecology, Iran University Of Medical Sciences, Tehran, Iran

Introduction

Preeclampsia is a serious pregnancy-related disorder that affects a growing number of women worldwide, with incidence rates ranging from 3 to 28 percent. While the disorder typically resolves after delivery, it can persist in some patients and lead to significant morbidity and mortality. Recent research suggests that loop diuretics may hold promise in reducing the incidence of persistent hypertension in women with a history of preeclampsia during pregnancy. This study aims to investigate the potential benefits of loop diuretics in preventing persistent hypertension in this patient population.

Materials and Methods

The study was a randomized controlled trial that involved patients who were hospitalized for either delivery or pregnancy termination. The patients were split into two groups randomly - one group received treatment with an angiotensin receptor blocker (ARB) alone, while the other group received an ARB along with a low dose of furosemide. The study was single-blind and aimed to compare the primary and secondary outcomes between the two groups.

Results

Overall 120 patients were enrolled in this study, with each arm comprising 60 patients. Baseline characteristics were similar between the two groups. There was a 44% reduction (95%CI: 0.26-0.68) in the risk of developing persistent hypertension at 7 days post-partum in women randomized to receive furosemide (5% vs 9%). 17% of patients in Furosemide group and 29% of patients in ARB only group required addition of another drug for hypertension control (RRR=0.41,95%CI=0.31-0.51). 3% of patients in the Furosemide group and 7% in the ARB group required further hypertension related hospitalization in the postpartum period (RRR=0.43,95%CI=0.38-0.48). The incidence of adverse events did not differ between two groups.

Conclusion

In pregnant women with preeclampsia, adding low-dose furosemide to ARBs can reduce the incidence of persistent hypertension, diminish the requirement for additional antihypertensive medications and decrease hypertension-related hospitalizations.

Keywords

hypertension preeclampsia loop-diuretics

Cardiogenic shock following acute MI in a young patient with familial hypercholesterolemia, and severe aortic stenosis: A case report

Introduction

Background: Familial hypercholesterolemia is a relatively rare disorder with various clinical manifestations including premature coronary artery disease.

Materials and Methods

Case presentation: A 15-year-old boy presented with acute exacerbation of dyspnea and exertional chest pain with a progressive feature since one month earlier.

Results

He had a clustered family history of premature cardiovascular death, hyperlipidemia, and cutaneous lesions in two of his siblings. He presented with acute severe heart failure accompanied with high levels of cardiac troponin and LDL cholesterol. Echocardiography revealed severe LV dysfunction, in concert with valvular and supra-avalvular Aortic stenosis. He underwent Coronary angiography, which showed involvement of Left main coronary artery and two-vessel disease. The patient was diagnosed with cardiogenic shock secondary to acute non-ST segment elevation myocardial infarction, and phenotype of familial hypercholesterolemia.

Conclusion

Conclusions: Premature malignant atherogenesis in both aortic root and coronary arteries with early presentation of acute myocardial infarction and severe heart failure is an uncommon constellation in early course of the FH, which leads to confined treatment options.

Keywords

Familial hypercholesterolemia, Myocardial infarction

Saeed Ghodsi

Assistant-professor, Cardiology, Sina Hospital, Tehran University Of Medical Sciences, Tehran, Iran

Zahra Hosseini

Cardiology, Tehran University Of Medical Sciences, Tehran, Iran



Long-term Major Adverse Cardiovascular Events in patients with moderate and severe COVID-19: Prognostic effects of early Statin use and previous CVD

Saeed Ghodsi

Assistant-professor, Cardiology, Sina Hospital, Tehran University Of Medical Sciences, Tehran, Iran

Arezoo Khosravi

Professor, Atherosclerosis Research Center, Baqiyatallah University Of Medical Sciences, Tehran, Iran

Arash Jalali

Associated-professor, Cardiology, Tehran University Of Medical Sciences, Tehran, Iran

Introduction

Background: Limited data exists regarding the status of long-term cardiovascular outcomes of hospitalized COVID-19 patients.

Materials and Methods

Objective: We aimed to examine the efficacy of early statin use after SARS-CoV2 pneumonia and impact of prior CVD on incidence of cardiovascular events.

Methods

A prospective cohort study was performed among hospitalized COVID-19 patients. Primary endpoint was major adverse cardiovascular events (MACE) as a composite of cardiovascular mortality, stroke, heart failure, VTE, revascularization, and non-fatal MI. Secondary endpoints included MACE components, all-cause mortality, readmission for COVID-19, and impaired functional class.

Results

Mean age of the 858 participants (64 % men) was 55.5 ± 13.97 years and median follow up time was 13 months (11.5-15). Overall, MACE occurred in 84 subjects (9.8%) and 98 patients (11.4 %) received ventilation. Multivariate Cox-regression explored the association of statin use and outcomes. Hazard ratios were as following: MACE (0.831 (0.529- 0.981) $P=0.044$), All-cause mortality ((1.098 (0.935- 1.294) $P=0.255$), Stroke (0.118 (0.029- 0.48) $P=0.003$), Revascularization (0.103 (0.029- 0.367) $P<0.0001$), poor functional capacity (0.827(0.673- 1.018) $P=0.073$), Non-fatal MI (0.599 (0.257- 1.394) $P=0.234$), VTE (0.376 (0.119- 1.190) $P=0.096$), and decompensated Heart failure (0.137 (0.040- 0.472) $P=0.002$). Prior CVD predicted MACE (2.953 (1.393- 6.271) $P=0.005$), all-cause death (1.170 (0.960- 1.412) $P=0.102$) and VTE (2.770 (0.957- 8.955) $P=0.051$).

Conclusion

Previous CVD is a robust predictor of long-term MACE and VTE. Early statin use might decrease MACE, ischemic stroke, revascularization, and readmission for heart failure.

Keywords

COVID-19, MACE, statin, cardiovascular disease



Management of the aortic arch disease

Introduction

there is deferent procedure for this complex disease in type A and type B aortic deseccration with aortic arch involving. Thus we try to describe the conventional management this complex pathology

Materials and Methods

-

Results

-

Conclusion

the aortic arch disease complex and progress in therapy with endovascular and hybrid surgery help to treatment with conventional elephant trunk and frozen elephant trunk (CET - FET) and the novel medical dissection stent (AMDS) and really future is birth.

Keywords

-

Mahmoud Shirzad

Associated-professor, Tehran Heart Center,
Tehran University Medical Science, Tehran,
Iran



Comparing Radiological Criteria for Diagnosing Right Atrial Enlargement in Chest Radiographs: A Sensitivity and Specificity Evaluation with Echocardiographic Data

Negar Ebrahimi

Doctoral-degree, Student Research Committee, Faculty Of Medicine Mashhad University Of Medical Sciences Mashhad, Iran

Leila Bigdelu

Associated-professor, Division Of Cardiovascular, Vascular Surgery Research Center Mashhad University Of Medical Sciences Mashhad, Iran

Majid Khadem-Rezaiyan

Assistant-professor Departement Of Community Medicine, School Of Medicine Mashhad University Of Medical Sciences Mashhad, Iran

Introduction (Background & Objectives)

Right atrial (RA) enlargement is commonly associated with a variety of cardiovascular disorders. While echocardiography is considered the gold standard for assessing RA size, it may not always be available in certain clinical settings. This study aimed to compare the sensitivity and specificity of radiological criteria for diagnosing right atrial enlargement on chest X-ray imaging (CXR), using echocardiography as the gold standard.

Material & Methods

A total of 180 subjects who underwent echocardiography at the echocardiography clinic of Ghaem Hospital between July 2021 and May 2023 and had a standard CXR 48 hours before or after the procedure, were enrolled in the study. Four radiographic criteria were evaluated by 2 researchers who were blinded to the echocardiography results. These criteria included the ratio of the right side of the heart to the transverse diameter of the heart, the size of the right cardiophrenic angle, the ratio of the RA to the right hemithorax, and the angle between the RA and the ascending aorta. Echocardiography reports were used to extract data on the area and index volume of the RA. Data of each patient were assessed using their chest posterior-anterior view, and were analyzed by statistical methods.

Conclusion

The ratio of the RA to the right hemithorax is the most effective diagnostic criterion for RA enlargement on CXR due to its high sensitivity and specificity and the highest area under the ROC curve. The ratio of the right side of the heart to the transverse diameter of the heart can also be used to evaluate the size of the RA with relatively high sensitivity and specificity. The right cardiophrenic angle has high specificity but low sensitivity. The angle between the RA and the ascending aorta is not recommended as the sole measure of right atrial enlargement due to reported sensitivity and specificity.

Keywords

chest-x-ray echocardiography right-atrial-enlargement sensitivity specificity

The Difference Between Echocardiographic Findings Based On Cause of Brain Death: A Single Center Study in Sina Organ Procurement Unit

Introduction

The study's aim was to evaluate the cardiovascular status of confirmed brain death cases by echocardiography and per case coronary angiography or transesophageal echocardiography and compare the result between procured and rejected cases.

Materials and Methods

This study was performed on patients who have been registered in ..X.. hospital after confirmation of brain death.

Based on echocardiographic data, Brain death cases were introduced for donation or extraction from the heart donation group. Collected data included, Left and right chambers dimension and function, such as LVEF, regional wall motion abnormalities, diastolic function, heart valve characteristics and performance, and systolic pulmonary artery pressure. Demographical data, cause of brain death, and other performed procedures were gathered from medical records. Data were analyzed by SPSS 18 Software.

Results

The mean age of the cases was 29.28 ± 10.59 years. Altogether, the main cause of brain death 47 (49.5%) was head trauma.

According to the ANOVA test, there were statistically significant differences between the cause of brain death and EF, as well as estimated systolic pulmonary artery pressure.

Based on the regression test analysis, the cause of brain death, gender, and EF, LV size, LVDD, LVD posterior wall thickness were the predictors of heart donation.

According to Chi-square, there were statistically significant differences between gender and the EF (Preserved/ Normal).

Conclusion

Based on our results, LVEF and SPAP are the most important predictors for suitable heart for procurement. In addition, successive re-evaluation of borderline cases is recommended in order to increase the pool of potential heart donors.

Keywords

Heart transplant graft survival transplantation

Azadeh Sadatnaseri

Assistant-professor, Cardiology Sina University Hospital, Tehran University Of Medical Sciences, Tehran, Iran

Marzieh Latifi

Doctoral-degree, Medical Ethics And Law Research Center, Shaheed Beheshti University Of Medical Sciences, Tehran, Iran
Shahrokh Karbalai, Associated-professor, Department Of Cardiology, Sina Hospital, Tehran University Of Medical Sciences, Tehran, Iran

Mostafa Rozitalab

Assistant-professor, Department Of Cardiology, Sina Hospital, Tehran University Of Medical Sciences, Tehran, Iran

Abbas Soleimani

Zahra Shajari

Assistant-professor, Department Of Cardiology, Sina Hospital, Tehran University Of Medical Sciences, Tehran, Iran

Saeed Ghodsi

Assistant-professor, Department Of Cardiology, Sina Hospital, Tehran University Of Medical Sciences, Tehran, Iran

Hoda Mombeini

Assistant-professor, Cardiac Primary Prevention Research Center (CPPRC), Sina Hospital, Tehran University Of Medical Sciences, Tehran, Iran

Atieh Rezaifar

Assistant-professor, Department Of Cardiology, Sina Hospital, Tehran University Of Medical Sciences, Tehran, Iran

Elahe Pourhosein

Master's-degree, Sina Organ Procurement Unit, Sina University Hospital, Tehran University Of Medical Sciences, Tehran, Tehran, Iran

Sanaz Dehghani

Doctoral-degree, Sina Organ Procurement Unit, Sina University Hospital, Tehran University Of Medical Sciences, Tehran, Iran



Utility of Electrocardiogram to predict the occurrence of the no-reflow phenomenon in patients undergoing Primary Percutaneous Coronary Intervention (PPCI): A systematic review and Meta-analysis

Elmira Jafari Afshar

Doctoral-degree, Cardiovascular Research Center, Alborz University Of Medical Sciences, Karaj, Iran

Parham Samimisedeh

Doctoral-degree, Cardiovascular Research Center, Alborz University Of Medical Sciences, Karaj, Iran

Introduction

The no-reflow phenomenon affects about one out of five patients undergoing percutaneous coronary intervention (PCI). Prolonged no-reflow duration is linked with worse outcomes, making early recognition crucial for improved clinical outcomes in patients. Our review study aimed to determine whether electrocardiogram (ECG) findings before PCI could serve as predictors for the occurrence of the no-reflow phenomenon in these patients.

Materials and Methods

We systematically searched MEDLINE, Scopus, Embase, and Web of Science to identify relevant studies. The random-effect model using inverse variance and Mantel-Haenszel methods were used to pool the standard mean differences (SMD) and odds ratios (OR), respectively.

Results

16 eligible articles (1,473 cases and 4,264 controls) were included in this study. Based on our meta-analysis of baseline ECG findings, the no-reflow group compared to the control group significantly had a higher frequency of fragmented QRS complexes (OR (95% CI): 1.35, 95% CI 0.32-2.38, $P=0.01$) and Q-waves OR (95% CI): 1.97, 95% CI 1.01-2.94, $P<0.001$), also a longer QRSD (SMD (95% CI): 0.72 (0.21 to 1.23), p -value <0.001) and RWPT (SMD (95% CI): 1.36 (0.8-1.93), $P<0.001$). The two groups had no significant difference regarding PWPT and Pmax on baseline ECG.

Conclusion

Our findings suggest that prolonged QRSD, delayed RWPT, and the presence of a Q wave on baseline ECG may predict the occurrence of the no-reflow phenomenon in patients undergoing PPCI.

Keywords

No-reflow phenomenon ECG electrocardiogram

Mid-term Cardiovascular follow-up of COVID-19 patients with permanent pacemaker implantation due to symptomatic bradyarrhythmia

Introduction

SARS-CoV-2 causes a disease with multisystem involvement. One of the most basic systems involved is the heart. Among the cardiac manifestations of this disease are various arrhythmias with possible mechanisms of direct damage to the myocardium, hypoxia, myocardial damage and ischemia, cytokine storm, and electrolyte imbalance. However, the underlying mechanism is still unknown. Bradyarrhythmias are one of the manifestations of the involvement of the heart's conduction system, which is associated with an unfavorable prognosis and sometimes requires treatments such as implanting a pacemaker. The rate of prevalence of transient or permanent Atrio-ventricular block in this disease is unknown that affects on the treatment of Brady arrhythmias in the conditions of the COVID-19 pandemic.

Materials and Methods

The study population was among patients with symptomatic Brady arrhythmias who referred to Chamran Heart center, Isfahan, Iran from the outbreak of the SARS-CoV-2 (February 2020) until February 2022 and were diagnosed with Covid-19 based on the PCR test. Due to symptomatic Brady arrhythmias, they underwent permanent pacemaker implantation and they were monitored in 1 month and 12 months after device implantation.

Results

The most common comorbid disease was hypertension. Systolic blood pressure and respiratory rate in hospitalized patients decreased significantly during discharge. Also, oxygen saturation and heart rate increased significantly during discharge ($P < 0.001$). In this study, high degree Atrio-ventricular block remained permanent in most patients and was not transient.

Conclusion

Based on the experience gained from this study, the implantation of a permanent pacemaker for the treatment of Brady arrhythmias should be done based on the existing guidelines, regardless of the status of COVID-19.

Keywords

permanent pacemaker heart block COVID-19

Javad Shahabi



Using artificial intelligence (AI) for electrocardiography-based diagnosis

Reza Hosseinzadeh

Master's-degree, Medicine, Urmia Medical Science, Urmia, Iran

Sara Karimpour Kalou

Master's-degree, Medicine, Urmia Medical Science, Urmia, Iran

Introduction

Cardiovascular diseases (CVD) are responsible for a significant number of fatalities on a global scale. There is a need for improved accuracy and reduced error rates in the diagnostic assessments conducted by medical experts. Artificial intelligence (AI), utilizing machine learning technology, has emerged as a prospective remedy for addressing the constraints associated with existing electrocardiography analytical techniques, exhibiting encouraging outcomes

Materials and Methods

The databases that were searched for relevant literature on the topic of artificial intelligence and electrocardiography (ECG) were PUBMED, MEDLINE, and Google Scholar.

Results

Out of 151 articles, 20 articles selected for inclusion in this review, spanning the period from 2013 to 2023. The selection criteria were based on their relevance and potential applications in current and future contexts. Specifically, the focus of these articles revolved around the development of AI techniques in the fields of Cardiovascular diseases. It has been confirmed that this technology is improving the accuracy of diagnoses. The utilization of AI-ECG has demonstrated notable enhancements in the diagnosis of low ejection fraction (EF) and atrial fibrillation. These improvements are characterized by expedited and cost-effective trials as well as increased specificity. Nevertheless, several obstacles hindered the progress of these investigations, encompassing restricted applicability to diverse racial and ethnic groups, data quality concerns, ethical and logistical complexities, as well as the difficult process of convincing healthcare providers to embrace the technology.

Conclusion

This review highlights the ongoing development of AI models designed to diagnose anomalies in ECG readings. These models are progressively evolving to be compatible with wearable and mobile devices, enabling their utilization in emergency rooms and hospitals for regular checkups.

Keywords

Electrocardiography, Artificial intelligence, Machine learning, Deep learning, Cardiovascular diseases

Advanced Echocardiography in Cardiac Sarcoidosis and its Compatibility with Cardiac Magnetic Resonance (CMR) Imaging

Introduction

Sarcoidosis is a multisystem granulomatous disease, which can represent cardiac involvement. The diagnostic significance of advanced echocardiography in cardiac sarcoidosis (CS) was investigated in this study.

Materials and Methods

From April 2021 to March 2022, 20 biopsy-proven extracardiac sarcoidosis cases with cardiac involvement proved by CMR were recruited. Advanced echocardiography parameters were compared to 20 healthy controls (HCs) without cardiac disease in two subgroups of CS patients with normal left ventricular ejection fraction (LV EF) (9 subjects) and CS patients with reduced LV EF (11 subjects) (4D LVEF > 55 % for men and > 57 % for women). TomTec software was used to analyze echocardiographic parameters. Intersegment comparison of LV longitudinal strain (LS), circumferential strain (CS), and radial strain (RS) with late gadolinium enhancement (LGE) in CMR was performed.

Results

The average age of CS patients was 49.0 ± 12.0 years, with 40% of them being female. The results of 4D echocardiography analysis showed that the mean LV EF was 53.0 ± 8.1 %, LVEDVi was 44.5 ± 10.7 cc/m², LV GLS was -19.6 ± 4.4 %, LV GCS was -23.1 ± 5.2 %, LV GRS was 35.3 ± 7.4 %, LV Twist was 12.4 ± 7.9 °, LV Torsion was 1.1 ± 1.0 °/s, RV EF was 56.8 ± 9.1 %, and RVEDVi was 36.2 ± 10.3 cc/m². Our analysis showed that RV free wall GLS was decreased in both CS subgroups ($P=.000$). Also, GCS ($P<0.001$) and GRS ($P=.001$) are significantly decreased in the reduced EF subgroup compared with normal EF subgroup and HCs. Intersegment comparison of LV RS, LS, and CS with LGE in CMR revealed significant correlation in some cardiac segments including LS apico-inferior segment (P value:0.002), LS base of anteroseptal segment (p value:0.006), LS apicoseptal segment (P value:0.002). However, no specific pattern of involvement was detected.

Conclusion

In CS patients, reduced 4D strain values in the RV GLS and LV GLS in both subgroups can be employed as a diagnostic marker. However, our findings show significant correlation with CMR LGE only in some segmental analysis.

Keywords

Cardiac Sarcoidosis – Advanced Echocardiography – Cardiac Magnetic Resonance Imaging (CMR)

Samira Eslami

Assistant-professor, Cardiology, Iran University Of Medical Sciences, Tehran, Iran

Kimia Vakili

Medicine, Shahid Beheshti University Of Medical Sciences, Tehran, Iran



Activity Status and Cardiovascular Diseases: A Cross-sectional Study Based on the Results of Rafsanjan Cohort Study (2020)

Fatemeh Ayoobi

Assistant-professor, Occupational Safety And Health Research, Rafsanjan University of Medical Sciences, Rafsanjan, Iran

Introduction

Cardiovascular disease (CVD) is the leading cause of morbidity and mortality across the globe. Activity status is used as a social class marker of CVDs. The present study aimed to analyze the associations between occupational status and CVDs in Iranian population.

Materials and Methods

The present cross-sectional study was conducted on 9,990 subjects aged 35-70 years enrolled in the Rafsanjan Cohort Study (RCS), as one of the Prospective Epidemiological Research Studies in Iran (PERSIAN). Occupational status, socio-demographic characteristics, physical activity, cigarette and hookah smoking, opium use, and alcohol consumption were assessed through six pre designed questionnaires. Anthropometric, body mass index (BMI), medical history, and laboratory tests were also performed. CVDs were defined as the presence of ischemic heart disease (IHD) or myocardial infarction (MI). Prevalence ratios were calculated for each activity status and CVD using Poisson regression models.

Results

The occupational activities were assigned to two classes: homemaker (40.17%) was the largest group of class I, followed by self-employed (34.44%), employed (13.03%), retired (10.38%), and unemployed (1.62%). In class II, the largest group included pistachio farmers (12.61%), copper miners (3.62%), and others (83.76%). A percentage of people were illiterate (9.50%), especially in the homemaker group (61.39%). In general, 8.71% and 2.98% of participants suffered from IHD and MI, respectively. After adjusting the socio-demographic and other characteristics, there was no significant association between occupational status and CVDs.

Conclusion

As evidenced by the obtained results, activity status was not associated with the risk of IHD and MI

Keywords

Cardiovascular disease, Occupational status

Clinical outcomes of off-pump coronary artery bypass graft in patients with diabetes and non-diabetics: A systematic review and metaanalysis

Introduction

Diabetes mellitus is a prevalent risk factor for developing coronary artery disease which worsens the clinical outcomes of patients undergoing coronary artery bypass grafting (CABG). This study aimed to determine the clinical outcomes of patients with diabetes and non-diabetic patients who underwent off-pump CABG surgery.

Materials and Methods

Medline, Scopus, Proquest, Embase, Web of Science, and Google scholar were searched until September 10, 2021. The effect sizes including unstandardized mean difference and odds ratio with 95% confidence interval were calculated using "Metan" package. The Cochran's Q-test and I² statistic were used to assess heterogeneity, a random-effects model was applied to estimate the pooled effect sizes, and meta-regression was used to investigate the factors affecting heterogeneity between studies.

Results

10 studies with 6200 sample sizes were included in the study. In groups with diabetes, Summary odds ratio (SOR) and 95% confidence interval of infection was 2.18 more than non-diabetic groups. Also, odds renal complication was 1.74 more than non-diabetic groups, and the odds cardiovascular complication in groups with diabetes was 1.30 more than non-diabetics. There were no differences in mortality, neurologic, respiratory and surgical complications between groups with diabetes and non-diabetics.

Based on meta-regression results, age (Coefficient: 0.942; $p = 0.009$) had a significant direct relationship and sample size (Coefficient: 0.001; $p = 0.009$) had an indirect significant relationship with heterogeneity of neurologic outcomes. There was no significant publication bias in our results.

Conclusion

Our study revealed that off-pump CABG led to some significant outcomes in patients with diabetes compared to non-diabetics. Renal and infection complications were higher in patients with diabetes but no significant differences were seen in most of other postoperative outcomes between the two groups.

Keywords

Diabetes, Off-pump CABG, Clinical outcome

Reza Pakzad

Assistant-professor, Department Of Epidemiology, Ilam University Of Medical Sciences, Ilam, Iran

Fatemeh Abdi

Assistant-professor, Non-communicable Diseases Research Center, Alborz University Of Medical Sciences, Karaj, Iran



A case report of abnormal branching of the right coronary artery from the left anterior descending arter

Mahsa Mehdizadeh

Master's-degree, Heart Hospital Golestan, Golestan, Gorgan, Iran

Alireza Kalbali

Master's-degree, Gorgan Medical Sciences, Golestan Medical Sciences, Gorgan, Iran

Mahdi Zahedi

Associated-professor, Golestan University Medical Science, Golestan, Gorgan, Iran

Introduction

Coronary artery anomalies are rare congenital diseases and in more than half of the cases, sudden death was the first symptom of this anomaly and they are seen as an incidental finding during coronary angiography.

Materials and Methods

Patient introduction: In this report, a 54-year-old woman who presented with chest pain and changes in the ECG and underwent angiography.

Results

A moderate lesion was seen in the proximal part of the LAD, and the patient's RCA originated from the LAD and was not occluded.

Conclusion

The abnormal branching of the right coronary artery from the left descending descending artery can occur in different ways, and the incidence of complications and the treatment of this abnormality depends on the occlusion of the artery.

Keywords

anomalies, RCA,LAD

نارسایی پارادریچه ای بعد از عمل تاولی

(Paravalvular regurgitation (PVR) after transcatheter aortic valve implantation (TAVI))

Introduction

امروزه (TAVI) به یک روش ایمن و موثر برای درمان بیماران علامت‌دار مبتلا به تنگی شدید آئورت (AS)، با نتایج قابل پیش‌بینی و تکرارشونده تبدیل شده است. می‌توان پیش‌بینی کرد که تا چند سال آینده این رویکر جراحی به خط اول درمان بیماران مبتلا به AS مبدل گردد. یکی از عوارض مهم بعد از این جراحی، Paravalvular regurgitation می‌باشد، که باید مدنظر جراحان و اینترونشنیست قرار بگیرد.

Materials and Methods

چکیده حاضر بخشی از نتایج پژوهش متاآنالیز در حال انجام در دانشگاه علوم پزشکی تهران است. پس از حذف مطالعات تکراری و غیرواجد شرایط، ۳۰ مطالعه وارد پژوهش شدند. مطالعات شامل آینده‌نگر، گذشته‌نگر، استادی پروتکل و مداخله‌ای بودند. برخی از معیارهای ورود مطالعات غیرتصادفی بودند.

Results

میزان بروز Paravalvular regurgitation نسبت به سال‌های قبل کمتر شده است، منتها نکته مهم این است که در صورت بروز این عارضه مهم، با افزایش مرگ و میر دو تا سه برابری به همراه خواهد بود. عوامل زیادی مانند کلسیفیه شدید دریچه اولیه به ویژه در امتداد لت‌ها، زاویه مجرای خروجی بطن چپ نسبت به آئورت صعودی و ... بر قرارگیری دریچه ترانس کاتتر تاثیرگذار است. انجام TEE سریال، تصویربرداری رزونانس مغناطیسی قلبی و آنژیوگرافی برکنترل این عارضه تاثیرگذار است. برخی مطالعات همبستگی معناداری را در بروز این عارضه و تغییرات حجم انتهایی دیاستولیک (EDV) و EF و نارسایی قلبی در طی شش ماه فالوآپ نشان دادند. در واقع این عوارض در بیمارانی که از قبل تنگی شدید آئورت دارند و در نتیجه بطن چپ آنها با اضافه بار حجمی ناشی از TAVI سازگار نیست، ممکن است توضیح داده شود. لازم به ذکر است انجام آنژیوگرافی سریال جهت کنترل این عارضه به علت افزایش آسیب‌های حاد کلیوی تا ۳۰٪ توصیه نمی‌شود.

Conclusion

در صورت بروز PVR احتمال مرگ و میر ۲ سال بعد از جراحی بسیار بالاست. بنابراین فالوآپ و در نظر گرفتن این پارامتر مهم در تعیین پیش‌آگهی TAVI اهمیت زیادی دارد. اما این سوال وجود دارد آیا اقدامات اصلاحی قادر به بازگرداندن تأثیر نامطلوب پیش‌آگهی آن هستند یا خیر؟ پیشنهاد می‌شود پژوهش‌های بیشتری در این زمینه انجام گردد.

Keywords

Paravalvular regurgitation, TAVI, TEE

Banafsheh Ghorbani

Doctoral-degree, School Of Nursing And Midwifery, Tehran University Of Medical Sciences, Tehran, Iran

Asgar Zare

ValiAsr Naja Hospital, Tehran, Iran



The interactive effect of preoperative consultation and operating room admission by a counselor on anxiety level and vital signs in patients undergoing Coronary Artery Bypass Grafting surgery. A clinical trial study

Behzad Imani

Associated-professor, Department Of Operating Room, School Of Paramedicine, Hamadan University Of Medical Sciences, Hamadan, Iran, Hamadan University Of Medical Sciences, Hamadan, Iran

Shirdel Zandi

Master's-degree, Department Of Operating Room, School Of Paramedicine, Hamadan University Of Medical Sciences, Hamadan, Iran, Hamadan University Of Medical Sciences, Hamadan, Iran

Babak M

Assistant-professor, Department Of Heart Surgery, School Of Medicine, Hamadan University Of Medical Sciences, Hamadan, Iran, Hamadan University Of Medical Sciences, Hamadan, Iran

Mehdi Sahebi

Master's-degree, Department Of Operating Room, School Of Paramedicine, Hamadan University Of Medical Sciences, Hamadan, Iran, Hamadan University Of Medical Sciences, Hamadan, Iran

Introduction

Objective. The purpose of this study was to provide appropriate preoperative supportive conditions to improve anxiety and vital signs for patients undergoing Coronary Artery Bypass Grafting -CABG- surgery.

Materials and Methods

Methods. This clinical trial study was performed on 90 patients undergoing CABG surgery in Farshchian Hospital of Hamadan, Iran in 2019. Sample was selected by convenience and were randomly divided into three groups: control (n=30), intervention1 (n=30), and intervention2 (n=30). The control group received only the routine preoperative counseling of ward and admitted to the operating room as usual; the intervention1 and intervention2 groups in addition received another two counseling sessions, then the intervention1 group was admitted in the operating room as usual, but the intervention2 group was admitted by the counselor in the operating room. Data were collected using a three-part questionnaire including demographic characteristics, vital signs chart, and the Spielberger's State-Trait Anxiety Inventory.

Results

Results. The results showed that there was a significant difference in the mean anxiety of the three groups after admission in the operating room (intervention2 was lower than intervention1 and control groups, $p<0.001$; and intervention 1 group was lower than control group, $p<0.001$) and also there was a significant difference between the mean systolic blood pressure, heart rate and respiratory rate of the three groups ($p<0.001$) but the mean of the variables of temperature and diastolic blood pressure in the three groups were not significantly different ($p=0.59$ and $p=0.225$, respectively).

Conclusion

Conclusion. Our results revealed preoperative consultation and admission in the operating room by the consultant can reduce the level of anxiety and stability of vital signs of patients undergoing CABG.

Keywords

CABG; V/S; operating rooms; counselors

An Analysis on Research Trends in Nursing Informatics and IoT in Tehran Hospitals

Introduction

Nurses as one of hospital staffs involve information from assessing the health care needs of patients, to developing care plans, to communicating patient information to other health professionals, to developing reports. Nursing informatics (NI) can help provide effective and safe healthcare. In this paper, we identify and describe broad topics of research trends in NI including (a) data interoperability such as terminology/standardization and care transition/handoffs, (b) mobile health, (c) clinical informatics research that deals with various clinical information applications such as Electronic Medical Records (EMR) and decision support systems, (d) human factors such as human computer interaction and communication and patient safety, and (e) big data research.

Materials and Methods

We examined NI research topics and designed a questionnaire based on themes mentioned.

Nurses with cognition in NI from academia and practice were eligible to participate. Questions asked centered on participants' perspectives of NI within their respective hospitals. We gather their responses on our proposed topics of research trends in NI including data interoperability [4], mobile health [5], clinical informatics research, human factors, and big data research [6].

Results

From 78 form distributed, the top five reported (n=73, 93/6%) research areas were as follows: data interoperability (n=43, 55/1%); mobile health (n=57, 78/1%); clinical informatics research (n=47, 64/4%); patient safety (n=32, 48/8%); and big data research (n=23, 31/5%).

Conclusion

This research provides a snapshot of current trends in NI research and can be used to direct future research efforts. Respondents reported that NI research focusing on education, clinical practice, administration, and theory was limited. Current research shows Iranian nurses to focus on the use of technology and education in order to become expert in IT. Then they prefer to clinical informatics research such as Nursing Decision Support System and research on administration and theory. Further research is needed to explain the impact of these trends and the needs from clinical practice.

Keywords

Nursing Informatics, Clinical informatics research

MS. Zhila Saneipour

Bachelor's-degree, Nursing, Bahman Hospital, Tehran, Iran

Dr. Mohammad Reza Nami

Associated-professor, Computer Engineering, QIAU, QAZVIN, Iran



Effective Prediction of Heart Failure with Machine Learning Technique

MS. Zhila Saneipour

Bachelor's-degree, Nursing, Bahman Hospital, Tehran, Iran

Dr. Mohammad Reza Nami

Associated-professor, Computer Engineering, QIAU, QAZVIN, Iran

Introduction

Heart Failure (HF) [1] is one of important causes of hospitalization among adults more than 65 years. If people did not pay attention to the issue of heart failure, it would finally cause the death. In the past years, different researchers used different methods to collect and analyze data with the aim to predict heart failure. Recently, machine learning techniques have been applied to the area of the prediction of HF [2]. Machine Learning has been introduced as an emerging technology in the world which can be used to detect whether a person is suffering from a cardiovascular disease by considering certain attributes like chest pain, cholesterol level, age of the person and some other attributes. Wang et al. [3] and Wu et al. [4] showed the prediction of the onset of HF at 2 years and 0.5 years using machine learning such as random forest method and SVM (Support Vector Machine) [5], respectively.

Materials and Methods

In this paper, we analyze a dataset of 150 patients with heart failure collected in 2021. We apply Support Vector Machine, one of the most popular machine learning techniques to predict whether a person is suffering from Heart Disease, to predict the patient survival. Since both feature ranking approaches clearly identify serum creatinine and ejection fraction as the two most relevant features, we then build the machine learning survival prediction models on these two factors alone.

Results

The results indicated that the SVM algorithm achieved the highest accuracy in predicting heart disease, with a rate of 92.30%.

Conclusion

Medical doctors aiming at understanding if a patient will survive after heart failure may focus mainly on serum creatinine and ejection fraction, although machine learning techniques can be highly useful.

Keywords

Heart Failure, Machine learning.



Revolutionizing Advanced Cardiac Resuscitation: Leveraging the Potential of Artificial Intelligence

Introduction

The landscape of healthcare is undergoing a paradigm shift through the integration of artificial intelligence (AI), particularly in the realm of advanced cardiac resuscitation. This abstract embarks on an exploration of the innovative applications of AI in redefining advanced cardiac resuscitation strategies, elucidating its multifaceted contributions, empirical outcomes, and strategic implications.

Materials and Methods

Based on a comprehensive analysis of contemporary literature and pioneering research, this inquiry delves into the strategic utilization of AI to elevate advanced cardiac resuscitation practices. The study critically evaluates the transformative role of AI through meticulous assessments and insightful discussions.

Results

AI technologies are ushering in a new era in advanced cardiac resuscitation. Real-time data analysis, predictive modeling, and machine learning algorithms empower healthcare professionals to predict high-risk scenarios, enabling timely interventions and personalized resuscitation approaches. AI-driven diagnostic tools offer rapid and accurate assessments, enhancing clinical decision-making and optimizing treatment pathways.

Conclusion

The paradigm of advanced cardiac resuscitation is undergoing an AI-driven evolution, reshaping patient outcomes. AI-fueled insights equip healthcare practitioners with informed resuscitation strategies, leading to reduced mortality rates and improved patient survival. Despite challenges associated with data privacy and integration, the transformative potential of AI in advanced cardiac resuscitation remains potent. As technology intersects with healthcare, the integration of AI promises a future where data-driven excellence defines the landscape of advanced cardiac resuscitation.

Keywords

Artificial intelligence, advanced cardiac resuscitation

Sharareh Zeighami Mohammadi

Assistant-professor, Department Of Nursing,
College Of Nursing & Midwifery, Karaj Branch,
Islamic Azad University, Karaj, Iran



The Effect of Home Care Training on Anxiety and Vital Signs Levels in Coronary Artery Bypass Grafting Patients: A Randomized Clinical Trial

Behzad Imani

Associated-professor, Department Of Operating Room, School Of Paramedicine, Hamadan University Of Medical Sciences, Hamadan, Iran, Hamadan University Of Medical Sciences, Hamadan, Iran

Shirdel Zandi

Master's-degree, Department Of Operating Room, School Of Paramedicine, Hamadan University Of Medical Sciences, Hamadan, Iran, Hamadan University Of Medical Sciences, Hamadan, Iran

Babak Manafi

Assistant-professor, Department Of Heart Surgery, School Of Medicine, Hamadan University Of Medical Sciences, Hamadan, Iran, Hamadan University Of Medical Sciences, Hamadan, Iran

Mehdi Sahebi

Master's-degree, Department Of Operating Room, School Of Paramedicine, Hamadan University Of Medical Sciences, Hamadan, Iran, Hamadan University Of Medical Sciences, Hamadan, Iran

Introduction

Purpose: Patients after coronary artery bypass grafting (CABG) require special care at home, and not being aware of this need before surgery can result in anxiety. This study aimed to determine the effect of home care training on the level of anxiety and vital signs in CABG patients. **Design:** The study was a randomized clinical trial study.

Materials and Methods

Methods: The study included 80 patients undergoing CABG surgery in January 2020. Samples were selected by convenience sampling and were randomly divided into intervention and control groups. The control group received only routine training, whereas the intervention group received two additional training sessions on home care. Data were collected using the Spielberger situational anxiety questionnaire and a checklist of vital signs, and then analyzed using descriptive and inferential statistics.

Results

Findings: Results showed that before the intervention, the mean anxiety scores, heart rate, respiratory rate, temperature, and systolic and diastolic blood pressure between the two groups were not significantly different ($P > .05$). However, after the intervention, the mean anxiety score, heart rate, respiratory rate, and systolic and diastolic blood pressure in the intervention group was significantly ($P < .05$) lower than the control group, but the mean temperature of the two groups showed no significant difference ($P > .05$).

Conclusion

Conclusions: Home care training before surgery reduces anxiety and improves vital signs. The use of home care training before surgery is recommended for this patient population.

Keywords

anxiety; CABG ;home care ;V/S

Self-care training and informational support of patients with a mechanical heart valve on the international normalized ratio and bleeding complications

Introduction

Introduction: The aim of the study was to determine the effect of self-care training and informational support of patients with a mechanical heart valve on the international normalized ratio (INR) and bleeding complications.

Materials and Methods

Material and methods: Design: A quasi-experimental study. Participants were recruited via convenience sampling and were randomly divided into two groups: control (n = 80) and intervention (n = 80). Participants in the control group received only routine training; in addition, the intervention group received 6 sessions of self-care training and 6 months of informational support. Monthly the level of INR and incidence of bleeding were determined. Data were analyzed using the independent t-test and χ^2 in SPSS16 software at a significance level of 0.05.

Results

Results: During 6 months of follow-up, except for the third month, the frequency of INR levels in the therapeutic target range (2.5–3.5) in the intervention group was significantly higher than that in the control group ($p < 0.05$). Also in the intervention group, the incidence of bleeding complications was lower than that in the control group, but this difference was not statistically significant ($p > 0.05$).

Conclusion

Conclusions: Proper self-care training and informational support in patients with mechanical heart valve replacement have positive results. By maintaining self-care, the level of a therapeutic target range of INR can be maintained and the incidence of bleeding complications can be reduced.

Keywords

self-care, INR, bleeding complications

Behzad Imani

Associated-professor, Department Of Operating Room, School Of Paramedicine, Hamadan University Of Medical Sciences, Hamadan, Iran, Hamadan University Of Medical Sciences, Hamadan, Iran

Shirdel Zandi

Master's-degree, Department Of Operating Room, School Of Paramedicine, Hamadan University Of Medical Sciences, Hamadan, Iran, Hamadan University Of Medical Sciences, Hamadan, Iran

Golamreza Safarpour

Assistant-professor, Department Of Heart Surgery, School Of Medicine, Hamadan University Of Medical Sciences, Hamadan, Iran, Hamadan University Of Medical Sciences, Hamadan, Iran



The effect of different patient cooling on blood sugar in open heart surgery

**Fatemeh Mohammadi
Shahrestanaki**

Master's-degree, Medical Science Of Esfahan
Univercity, Esfahan, Qazvin, Iran

Introduction

During cardiopulmonary bypass, the patient cools down to reduce the body's need for oxygen and reduce the body and heart metabolism, and since cooling reduces insulin secretion, it can increase blood sugar levels

Materials and Methods

This study was performed as a single-blind clinical trial in Isfahan Chamran Heart Hospital in patients undergoing non-emergency coronary artery bypass graft surgery and non-emergency valvular surgery. In this study, non-diabetic adult patients who were candidates for non-emergency CABG surgery and non-emergency valve surgery were divided into 2 groups, so that we decreased the temperature of one group to 30 ° C and the temperature of the other group to 34 ° C then We compared the blood sugar level during bypass.

Results

Due to the fact that the level of significance is less than 0.05, there is a significant difference between the means of hyperglycemia during cardiopulmonary bypass between the two groups □ 30 and □ 34.

Conclusion

According to the results, the rate of hyperglycemia during cardiopulmonary bypass was significantly different between the 30 ° C and 34 ° C groups, so it can be said that cooling patients during cardiopulmonary bypass increases hyperglycemia. Hyperglycemia is inversely related to temperature, so that the lower the temperature, the more severe the hyperglycemia in patients.

Keywords

Cardiopulmonary Bypass, Hypothermia, Blood sugar

Application of Haddon strategy training on self-care behavior and disease consequences in heart failure

Introduction

Heart failure affects the physical, physiological, social, and activities of individuals. The study aimed to teach preventive behavior with Haddon strategy on self-care behavior and the consequences of heart failure.

Materials and Methods

In this clinical trial, 96 patients with heart failure were randomly assigned to two groups. The Haddon group was educated with Haddon prevention strategies three times a week, for 60 minutes. A demographic questionnaire, self-care index, and consequences checklist were filled in both groups at the start of the study, discharge time, and one month after the last training session. Statistical analysis was done using independent t-test, paired t-test, chi-square, Fisher and analysis of covariance, Friedman, and Cochran Q in SPSS with version 23.

Results

Self-care behavior in the Haddon group after training significantly increased ($p < 0.001$). Disease consequences were significantly reduced in the Haddon group after training ($p < 0.05$). The consequences of the disease in Haddon group decreased during 4 weeks of monitoring and the changes were significant ($p < 0.001$).

Conclusion

It is suggested that this educational method could be used to increase self-care behavior, prevent hospitalizations, decrease symptoms, and improve quality of life for patients with heart failure.

Keywords

Haddon Strategy, Heart Failure

Arezou Karampourian

Assistant-professor, Nursing, Hamadan University Of Medical Sciences, Hamadan, Iran

Morteza Shamsizadeh

Master's-degree, Nursing, Hamadan University Of Medical Sciences, Hamadan, Iran

Younes Mohammadi

Associated-professor, Epidemiology, Hamadan University Of Medical Sciences, Hamadan, Iran

Seyedeh Afsaneh Hosseini

Bachelor's-degree, Nursing, Hamadan University Of Medical Sciences, Hamadan, Iran



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