Comparative study between thrombolytic therapy and surgery in 30 cases of acute left sided prosthetic valve thrombosis

Thesis

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Abestract

The study included 30 patients that were divided into two groups each of them included 15 patients. Group A received thrombolytic therapy while group B had done redo surgery. The mortality was 4 patients in thrombolytic group as compared to 2 mortality cases in the surgical group. The partial success was 2 cases in thrombolytic group. As regard the 2 pregnant in thrombolytic group they had a viable fetus as compared to 2 cases of IUFD in surgical group.

Key words: comparative study , acute left-sided prosthetic valve thrombosis , surgical redo, thrombolytic therapy

Contents

List of abbreviations

AATS	:	American Association for Thoracic Surgery
ABG	:	Arterial blood gas
ACC	:	American College of Cardiology
ACCP	:	American College of Chest Physicians
AF	:	Atrial fibrillation.
AHA	:	American Heart Association
APSAC	:	Anisoylated Plasminogen streptokinase activator
aPTT	:	Activated partial thromboplastin time
ATS	:	Advancing the Standard
AVN	:	Atrio ventricular node
CA	:	Closing angel
Cath lab	:	Catheterization laboratory.
CC	:	Closing Click.
CHB	:	Complete heart block.
CPAP	:	Continuous positive airway pressure
CPB	:	Cardio pulmonary bypass
CPR	:	Cardio pulmonary recussitation
CVA	:	Cerebro Vascular Accident.
CVC	:	Central venous catheter
Diag.	:	Diagonal artery
DM	:	Diastolic murmur
DVT	:	Deep vein thrombosis
ER	:	Emergency room
FDA	:	Food and Drug Administration
GIT	:	Gastro intestinal tract.
GFR	:	Glomerular filtration rate

h	:	hour
IMV	:	Invasive mechanical ventilation.
I.V	:	Intra venous
ICU	:	Intensive care unit
INR	:	International normalized ratio
K	:	potassium
LAA	:	Left atrial appendage
LA	:	Left atrium
LAD	:	Left anterior descending artery.
LL	:	Lower limb
LMWH	:	Low Molecular Weight Heparin
LV	:	Left ventricle
MC	:	Mitral closing sound
MRSA	:	Methicillin resistant staph aureus.
MSSA	:	Methicillin sensitive staph aureus
MVA	:	Mitral Valve Area
NHI	:	National Heart Institute.
NIMV	:	None invasive mechanical ventilation.
NYHA	:	New York Heart Association
OA	:	Open angel
OC	:	Opening Click
P2	:	Pulmonic component of the second heart sound
PS	:	Pressure support
PVT	:	Prosthetic Valve Thrombosis
PMVT	:	Prosthetic Mitral Valve Thrombosis
RAAS	:	Rennin angiotensin aldosterone system
RBF	:	Renal blood flow
RRT	:	Renal replacement therapy.
RSI	:	Rapid sequence induction

rt- PA	:	Recombinant tissue plasminogen activator
RV	:	Right ventricle.
S1	:	First heart sound.
S2	:	Second heart sound.
SC	:	Subcutaneous.
SD	:	Standard of deviation.
SEM	:	Systolic ejection murmur
SK	:	Streptokinase.
SLE	:	Systemic lupus erythromatosis
SR	:	Sinus rhythm
STEMI	:	ST segment elevation myocardial infarction.
St.Jude	:	Saint Jude (trade mark)
STS	:	Society of Thoracic Surgeon
TEC	:	Thrombo Embolic Complication.
TEE	:	Trans Esophageal Echocardiography
TIA	:	Transient ischaemic attack
TTE	:	Trans Thoracic Echocardiography
UFH	:	Unfractionated heparin
UK	:	urokinase
u- PA	:	Urokinase type- Plasminogen Activator
u	:	unit
VF	:	Ventricular fibrillation
VVI	:	Single chamber pacemaker pacing and sensing the ventricle.
WHO	:	World Health Organization.

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Introduction

Rheumatic heart disease remains a major problem in developing countries. Most often valve replacement is needed in case where the native valves are not suitable for either balloon interventional procedure or surgical repair ***(Reddy et al., 1994)*.**

Despite the advances in the design, material, selection and manufacturing of prosthetic valves, the currently available models still are less than ideal and none of them approaches the normal human valves in either hemodynamic function or long term freedom from valve related complication ***(Zeinen et al., 1990)*.**

Despite the improvement in the design of the anticoagulation, thrombosis is a well-recognized complication of prosthetic heart valves and is associated with substantial morbidity and mortality, actually mechanical valve obstruction is currently the main reason of mechanical valve re-operation ***(Edmunds 1987).***

In recent series, valve thrombosis was the most common prosthesis related complication found at the autopsy, which is higher in mechanical valves 23% comparing the bioprosthetic valves 11% ***(Zeinen et al., 1990)*.**

Prosthetic valve thrombosis is a life threatening complication with dramatic clinical presentation and rapid deterioration. The outcome is mostly fatal without intervention. However, the emergency operation with either valve replacement or thrombectomy with debridement was

considered the treatment of choice for acute prosthetic valve thrombosis, unfortunately, the operation in this situation associated with high mortality, which is ranging from 8 – 20 percent for urgent cases to 37.5%- 54.5% for emergency cases ***(Husbye et al., 1983).***

Thrombolytic Therapy:

Hence the pathogenesis of acute thrombosis in acute myocardial infarction and pulmonary embolism is the same of valve thrombosis, thrombolytic therapy was used as another modality in the treatment of stuck valves, which was initiated by Luluanga at 1971, when he used streptokinase in the treatment of tricuspid valve thrombosis ***(Luluanga et al., 1971).***

Three years later Baille and his colleagues used thrombolytic therapy in the treatment of left sided stuck valves ***(Baille et al., 1974)***, since this time tell know, thrombolytic therapy was used in management of stuck valves with different success rate ***(Agaewal et al., 1997)***.

Despite the agreement about thrombolytic safety in the treatment of prosthetic valve thrombosis, no special regimen is recommended and the percentage of re-thrombosis still undefined ***(Yaron et al., 2000).***

Prosthetic valve thrombosis is the most common prosthetic related complication found at the autopsy, which is higher in mechanical valves (23%) comparing the bioporthetic valves (11%) ***(Zeinen et al., 1994)***.

Prosthetic valve thrombosis is a life threatening complication with a dramatic clinical presentation and rapid deterioration, the outcome is mostly fatal without intervention ***(Reddy et al, 1994)***.

Inadequate level of anticoagulation is the most important factor involved in the pathogenesis of prosthetic valve thrombosis, adding to it many other factors including, the site and type of the prosthesis, the hypercoagulable state, the cardiac morphology and function ***(Hering et al., 2001)***.

Surgical treatment with either valve replacement or thrombectomy with debridement was considered the treatment of choice for acute prosthetic valve thrombosis, however, operation in this situation is technically demanding, with 37% to 55% mortality risk in emergency situation ***(Deviri et al., 1991)***.

Because the pathogenesis of acute thrombosis in acute myocardial infarction and pulmonary embolism is the same of valve thrombosis, thrombolytic therapy was tried as another modality in the treatment of stuck valves, which was initiated by Luluanga at 1971, when he used streptokinase in the treatment of tricuspid valve thrombosis ***(Luluanga et al, 1971)***.

Thrombolytic therapy has been accepted for routine treatment of tricuspid valve prosthetic occlusions, the concern for potential risk of systemic embolization has limited its use in left sided prosthetic valve thrombotic occlusion ***(Roudaut et al, 1992)***.

Thrombolytic therapy has been tried in acute left-sided prosthetic valve thrombosis as an alternative to emergency operation in case of critical clinical presentation, and when surgery is contraindicated ***(Witchitz et al, 1980)***. After that, thrombolytic therapy started to have an