Review in management of deep venous thrombosis of lower limb

Essay

Submitted by

Abdullah Mohammad Gamal Abdou
M.B.B.Ch

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Supervised By

Prof. Dr. Abou Baker El Sedik Mustafa Hasan
Professor of vascular surgery
Ain Shams University - Faculty of Medicine

Prof. Dr.Mohammad Ayman Fakhry
Professor of vascular surgery
Military Medical Academy

Dr. Ahmed Abou Elnaga Khallaf
Assistant professor of vascular surgery
Ain Shams University - Faculty of Medicine

Ain Shams University
Faculty of Medicine
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رؤية فى علاج جلطات الأوردة العميقة للطرف السفلى

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الطبيب/ عبد الله محمد جمال عبده

بكالوريوس الطب والجراحة

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توطئة للحصول على درجة الماجستير فى الجراحة العامة

تحت إشراف

الأستاذ الدكتور/ أبو بكر الصديق مصطفى حسن

أستاذ جراحة الأوعية الدموية

كلية الطب– جامعة عين شمس

الأستاذ الدكتور/ محمد أيمن فخري

أستاذ جراحة الأوعية الدموية

الأكاديمية الطبية العسكرية

الدكتور/ أحمد أبو النجا خلاف

أستاذ مساعد جراحة الأوعية الدموية

كلية الطب– جامعة عين شمس

كلية الطب

جامعة عين شمس

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APSAC	*Anisoylated purified streptokinase activator complex*
BM	*Balloon maceration*
CaVenT study	*catheter directed venous thrombolysis study*
C-CDT	*Catheter-directed intrathrombus thrombolysis in which thrombolytic agent was continuously infused*
CDT	*Catheter directed thrombolysi in which the thrombolytic agent administered as a bolus dose s*
CEAP classification	*Clinical, Etiological, Anatomical, Pathophysiological classification of chronic venous insufficiency*
C-FDT	*Fflow-directed thrombolysis in which urokinase was continuously infused*
CHF	*Congestive heart failure*
CIV	*Common iliac vein*
CT scan	*Computerized tomography scan*
CTPA	*Computed tomographic pulmonary angiography*
CVI	*Chronic venous insufficiency*
DVT	*Deep vein thrombosis*
ECG	*Electrocardiogram*
EIV	*External illac vein*
EMS	*placement of self-expandable metallic stent*
FDP	*Fibrin degradation products*
FDT	*Flow directed thrombolysis in which the thrombolytic agent administered as a bolus dose*
FV	*Femoral vein*
ICH	*Intracranial hemorrhage*
IVC	*Inferior vena cava*

LMWH	*Low molecular weight heparin*
MI	*Myocardial infarction*
MRA	*Magnetic resonance angiography*
MRI	*Magnetic resonance imaging*
ng/L	*Nano gram per liter*
PAIMS	*plasminongen activator Italian multicenter study*
PE	*Pulmonary embolism*
PMT	*Percutaneous mechanical thrombectomy*
PT	*pulse-spray pharmacomechanical thrombolysis*
PTA	*Percutanous transluminal angioplasty*
PTS	*Post thrombotic syndrome*
PV	*Popliteal vein*
RR	*Risk reduction*
rt-PA	*Recombinant Tissue plasminogen activator*
RVD	*Right ventricle dysfunction*
SVC	*Superior Vena Cava*
TF	*Tissue factor*
TNKase	*Tenecteplase*
t-PA	*Tissue plasminogen activator*
UEDVT	*Upper extremity deep vein thrombosis*
VTE	*Venous thromboembolism*

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✍ *Abdallah Abdou*

Dedication

✍ *This dissertation is dedicated to*

My parents.

My dear Wife.

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Thank you for your love, patience, encouragement, and for all the sacrifices you have made to give me a better life

Introduction

Venous thromboembolism (VTE), which encompasses both deep vein thrombosis (DVT) and pulmonary embolism (PE) is a significant health-care problem producing considerable morbidity, mortality and resource utilization ***(Geerts,2008)***.

DVT most frequently affects the deep veins of the lower extremity. It usually begins in the calf veins. In patients found to have DVT on investigation, 33% have proximal (popliteal and above) vein involvement ***(Anaya,2005).***

Known risk factors can be grouped under three headings first described by Virchow that predispose to venous thrombosis. Coagulopathy such as (malignancy, pregnancy, oral contraceptive, protein C , protein S deficiency and Anti thrombin III deficiency) and endothelial damage such as (trauma, pacing wires, surgery and central venous catheters) and venous stasis such as (induction of anesthesia, obesity, immobilization and history of varicose veins) ***(Costa ,2002)***.

Only 20-30% of patients with deep venous thrombosis manifested by symptoms and physical signs. Pain, swelling with pitting edema, calf tenderness. While 70% of patients

manifested only by one sign of classical signs or may be asymptomatic ***(Deaden,2002).***

Three categories for diagnosis of DVT. (A) clinical probability assessment based on patient history. (B) laboratory findings (D-dimer assays). (C) imaging studies most commonlyDuplex U/S and less frequently venography, CTV or MRV ***(Saharan ,2012)***.

VTE accounts for more deaths than the composite mortality of breast cancer, AIDS and road traffic accidents Up to 21% of DVT may lead to pulmonary embolism a potentially life threatening complication Further more DVT may cause severe morbidity in the short-term from phlegmasia caerulea dolens (PCD) and in the longer-term from chronic venous hypertension leading to the post-thrombotic syndrome (PTS) Up to 10% of patients with DVT develop venous ulceration ***(Karthikesalingam,2011).***

The main goals in treating DVT are to stop the thrombus from getting bigger, prevent the thrombus from breaking off and moving to lungs (pulmonary embolism), reduce the risk of recurrence of the DVT and prevent long term complications of DVT (chronic venous insufficiency or the postthrombotic syndrome [PTS]) ***(Ping,2011).***

The standard recommendation for treatment of patients with DVT is antithrombotic therapy, which begins with heparin and is followed by oral anticoagulation with warfarin.

Although this therapeutic anticoagulation method prevents thrombus extension, fatal pulmonary embolism, and recurrence of the DVT, it is not very helpful in minimizing the postthrombotic complications of acute DVT that result from persistent venous obstruction and destruction of vein valve function ***(Fang ,2011)***.

Non conventional thrombo ablative types of therapy in acute DVT include systemic thrombolytic therapy, catheter directed regional thrombolytic therapy (CDT) and percutaneous mechanical thrombectomy (PMT). PMT have been proposed as a new treatment for patient with DVT ***(Janssen,2012).***

CDT can be used as an adjunct to medical therapy but there is no consensus defining exact indications.

Combining CDT and PMT devices has been attempted to try to improve early mechanical thrombus removal and promote lysis of remaining clot.