Clinical update no. 534

3 April 2019

Imaging

Lower extremity duplex ultrasound

Duplex ultrasound is reliable.

The value of below knee imaging is controversial, though usually done in Australia. It is unclear that treating below knee DVT is of benefit, and accordingly whether there is benefit in looking.

There is incomplete resolution of thrombus in 30-50% which makes interpretation of future scans difficult. A follow up scan at 3-6mth can aid interpretation of subsequent imaging done for investigation of possible recurrent DVT.

Computed tomography pulmonary angiography

CT-PA is the preferred imaging.

iodinated contrast, which can cause nephrotoxicity (up to 14%) and allergic reactions (< 1%).[9]

The reference to nephrotoxicity in up to 14% is at odds with the bulk of data which does not support anything near that risk from contrast. The radiation exposure is 3-5 mSv.

Ventilation–perfusion scanning

Up to half of V/Q scans are non diagnostic.

V/Q is preferred in pregnancy. With normal lungs, a perfusion only scan is adequate.

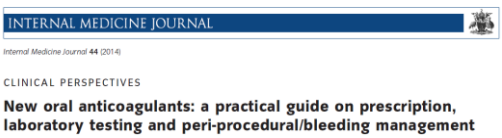
Treatment of venous thromboembolism

Anticoagulant therapy for deep vein thrombosis and pulmonary embolism

Oral factor Xa inhibitors (eg, apixaban, rivaroxaban) are preferred to dabigatran or warfarin to treat proximal DVT and PE.

In pregnancy and breast feeding DOACs and warfarin should not be used. Use LMWH.

In cancer, LMWH heparin is preferred. Warfarin is less effective. Rivaroxiban is effective but bleeding risk, notably GI bleeding, is higher.


INTERNAL MEDICINE JOURNAL

Internal Medicine Journal 44 (2014)

CLINICAL PERSPECTIVES

New oral anticoagulants: a practical guide on prescription, laboratory testing and peri-procedural/bleeding management

https://www.thanz.org.au/documents/item/187

Table 3 Who should not be on NOAC

Active significant bleeding†
Disorder of haemostasis† (e.g. von Willebrand disease or coagulation factor deficiency)
Prosthetic heart valve
Poor renal function (dabigatran and rivaroxaban‡, CrCl < 30 mL/min; apixaban CrCl < 25 mL/min)
Known hypersensitivity to a NOAC preparation
Concomitant medication known to affect pharmacokinetics (refer to Table 4)
Pregnant and breast feeding
Liver disease with an ALT > 2 times upper limit of normal or Child-Pugh Grade B or C§
Stably anticoagulated on warfarin (warfarin time in therapeutic range >65% over a 3-month period)

Table 2 Patient selection for anticoagulation initiation

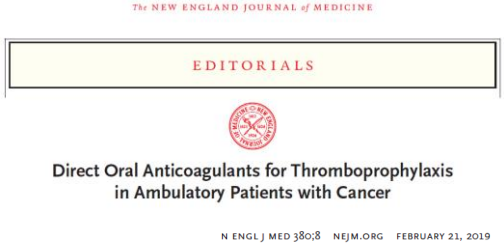
	N/DOAC	Warfarin
Recent stroke	No	Yes
Fribrinolytic treatment (2-10 days)	No	Yes
Dual antiplatelet ther.	No	Yes
Active cancer	No	No
	Use LMWH	
Weight <50kg	No	Yes

Duration of anticoagulation

Detailed above. Ranges from 6 weeks for provoked distal DVT, 3mth for other provoked, 6mth for initial unprovoked event, to indefinite for unprovoked recurrence or ongoing risk e.g. cancer. Low dose DOACs have a role for long term treatment, with similar benefit and some reduced bleeding.

Asprin does not have a role. It does not prevent DVT/PE but bleeding is still a risk.

The benefit of prophylaxis for cancer patients is unclear, though there is increased bleeding.


The NEW ENGLAND JOURNAL of MEDICINE

EDITORIALS

Direct Oral Anticoagulants for Thromboprophylaxis in Ambulatory Patients with Cancer

N ENGL J MED 380;8 NEJM.ORG FEBRUARY 21, 2019

LMWH is not recommended for low risk patients. For DOACS risk stratification based on tumour type and other factors is complex.

There is a reduction in DVT/PE with NNT 40, increased bleeding and no mortality benefit.

Complications of venous thromboembolism

Pulmonary hypertension and post thrombotic syndrome are complications, though it is not clear they can be prevented.

Invasive strategies for venous thromboembolism management

There is little compelling evidence to recommend invasive strategies for clot removal. There is little evidence for IVC filters. They are used if anticoagulation is contraindicated, but not as an adjunct. IVC filters must be removed subsequently.

JAMA Network | Open.

Original Investigation | Cardiology

Association of Inferior Vena Cava Filter Placement for Venous Thromboembolic Disease and a Contraindication to Anticoagulation With 30-Day Mortality

July 13, 2018

30 day moratlity is *increased*. Better evidence is needed for a fairly common intervention.

Subsegmental PE

There is little benefit in treating subsegmental PEs, though treatment is guided by adequate cardiovascular reserve, risk of recurrence and documented absence of DVT.

11 Role of additional interventions

Pulmonary embolism

Sustained hypotension (systolic BP < 90mmHg for 15 min or requiring inotropic support or pulselessness or sustained HR < 40 beats/min with signs/symptoms of shock)

Thrombolysis is indicated for massive PE with haemodynamic instability. Other invasive intervention or ECMO is based on availability.

Systolic BP > 90 mmHg and RV dysfunction or myocardial necrosis defined by:

- RV dilation (on echocardiography or CT); or
- RV systolic dysfunction on echocardiography; or
- elevation of BNP or NT-proBNP; or
- elevation of troponin

Submassive PE, as defined, may be considered for thrombolysis as guided by thrombus burden, cardiorespiratory reserve and bleeding risk. Studies do not show an acute benefit nor prevention of long term complications. PEITHO trial summaries -

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Fibrinolysis for Patients with Intermediate-Risk Pulmonary Embolism

for the PEITHO Investigators*

N ENGL J MED 370;15 NEJM.ORG APRIL 10, 2014

Inclusion criteria were PE with RV dysfunction and +ve troponin. It compared tenectaplase + heparin v heparin alone. There was no mortality benefit (<2%) 5% in the heparin only arm became haemodynamically unstable, v 1.6%, and 4% were subsequently thrombolysed.

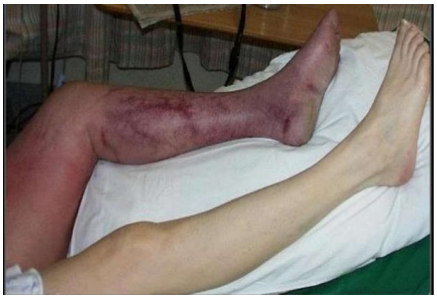
Long term outcomes from PEITHO trial -

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY VOL. 69, NO. 12, 2017

Impact of Thrombolytic Therapy on the Long-Term Outcome of Intermediate-Risk Pulmonary Embolism

Systemic thrombolysis in the acute phase of PE in normotensive patients with RV dysfunction (intermediate-risk PE) did not affect mortality rates over more than 3 years of follow-up, nor did it reduce residual dyspnea, functional limitation, or echocardiographic signs of RV pressure overload. Thus, an expectant strategy of anticoagulation, early monitoring, and rescue reperfusion in cases of hemodynamic decompensation is the preferable initial approach to patients with intermediate-risk PE.

Deep vein thrombosis For thrombus involving at least the common iliac vein consider pharmaco-mechanical removal, eg local thrombolysis, if extensive DVT with features of phlegmasia cerulea dolens. For non ileofemoral DVT just anticoagulate.



These updates are a review of current literature at the time of writing. They do not replace local treatment protocols and policy. Treating doctors are individually responsible for following standard of care.