



VTE Exemplar Centres

Providing leadership in thrombosis care

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Mechanical Thromboprophylaxis Implementation

Who is best placed to implement Mechanical TP?

- Nurses are at the centre of a national strategy to reduce deaths from VTE (CNO Bulletin Feb 2009)
- Assess organisational culture:-traditionally nurses deliver TP and do RA's eg falls, nutrition, PA care
- Follows on automatically from VTE risk assessment

Thromboprophylaxis CNS/Nurse Consultant

Leadership Considerations

- Leadership skills are often assumed to be achievable without specific preparation (Wright, 1996)
- Vision, Reality, Courage, Ethics
- Leadership style: empowerment, motivation, role model
- Organisational culture
- Power/Influence
- Conflict Management
- Negotiation skills

What Mechanical Methods of TP are available for implementation?

- Anti-Embolism Stockings
- Intermittent Pneumatic Compression devices
- Foot-Pumps
- Electrical Stimulation Devices
- Mobilisation/Exercise

ACCP 2008

- Mechanical thromboprophylactic methods do not even have to demonstrate that they provide any protection against VTE in order to be approved and marketed.
- Although many of these devices have never been assessed in any clinical trial, there is an unsubstantiated assumption that they are all effective and equivalent.

Code of Conduct (NMC 2008)

- Use the best available evidence
 - You must deliver care based on the best available evidence or best practice
 - You must ensure any advice you give is evidence based if you are suggesting healthcare products or services

Anti-Embolism Stockings

NICE 2007 (Surgical): GCS v no prophylaxis

- Selected 9 RCT's: 693 pt's (stockings) v 651 pt's control (no stockings)
- DVT:-88 pt's in stocking group v 158 pt's in control group
- Stockings reduced the risk of DVT by 53% (RR=0.47, 95% CI:0.32 to 0.69)
- 7 out of 9 used the same brand of AES

NICE Clinical Guideline 46, April, 2007

- On admission to hospital, offer all surgical inpatients thigh-length graduated compression/anti-embolism stockings, unless contraindicated.
- If thigh-length stockings are not appropriate knee-length stockings may be used instead.



CLOTS trial 1 (RCT, n=2518)

- Acute stroke and admission within last 7 days
- Routine care plus thigh-length AES (1256) v Routine care only (1262)
- USS 7-10 days and 25-30 days after enrolment (no baseline USS)
- Primary outcome:-proximal DVT
- 126 (10.0%) AES v 133 (10.5%) No AES
- Non-significant absolute reduction in risk of 0.5% (95% CI, – 1.9% to 2.9%)

CLOTS trial 1

- Skin breaks, ulcers, blisters, and skin necrosis were significantly more common in the AES group: 64 (5%) v 16 (1%): RR 4.02 95% CI 2.31 to 6.91, $p < 0.001$.
- Interpretation:- “These data do not lend support to the use of thigh-length GCS in patients admitted to hospital with acute stroke. National guidelines for stroke might need to be revised on the basis of these results”.

CLOTS trial 1

- Limitations:-
 - Background of ‘Routine care’:- affected findings?
LMWH/warfarin/antiplatelets/thrombolytics
 - AES applied after immobilisation has occurred in stroke patients (venous distension already occurred?)

“DVT’s can develop rapidly and cannot be prevented as effectively by a treatment starting a few days after the onset of paralysis and immobility”
 - No baseline USS performed
 - Stroke patients have increase risk of PVD and diabetes which potentially increases risk of ischaemic skin damage to the legs resulting from external compression

CLOTS trial 1

- Excluded pt's with PVD and those with diabetic or sensory neuropathy, when the responsible clinician or nurse judged that AES might cause skin damage. (more objective assessment needed?)
- Amputations:- “usually resulted from apparent embolism causing acute limb ischaemia rather than being attributed to the direct effect of AES”.
- The reporting of adverse effects was based on case-note review and was not blinded to treatment allocation. These data are therefore prone to ascertainment bias.

Muir 2000 (RCT n=97) Stroke

- (10.8%) 7/65 thigh length AES v (21.9%) 7/32 Controls (background 'standard care')
- Odds ratio 0.43, (95% CI 0.14 -1.36)
- AES produced a reduction in DVT incidence however it was not statistically significant
- DVT incidence determined at baseline and day 7+/-2 via USS. (Eligible within 24hrs of admission)
- Caution:-most DVT's (9/14 64%) were present on initial assessment ie within 24hrs of hospital admission.

Stable door shut to late?



CLOTS trial 2 and 3

- CLOTS trial 2 (AES thigh v knee length) on background of routine care now stopped:-due to results of trial 1
- CLOTS trial 3 (IPC v No IPC) on background of routine care. ***No baseline USS required and enrol up to day 3 of admission***

NICE draft March 2009:-Venous thromboembolism: reducing the risk

<http://www.nice.org.uk/nicemedia/pdf/VTEConsultationNICEGuideline.pdf> (will replace Guideline 46)

- For patients diagnosed with stroke offer mechanical VTE prophylaxis (thigh-length anti-embolism stockings, intermittent pneumatic compression devices or foot impulse devices) from admission until the patient's mobility is no longer increasing or until discharge.

NICE draft (update) August 2009:-Venous thromboembolism: reducing the risk

- Do not offer anti-embolism stockings to stroke patients for VTE prophylaxis.
- Offer stroke patients who are assessed to be at risk of VTE and for whom pharmacological VTE prophylaxis is contraindicated one of the following: **NO RECOMMENDATION.**

CLOTS: a missed opportunity? (The Lancet)

- SMTL: TED performs poorly on HATRA compared with other AES
- It is a matter of some regret that our findings were not considered by those responsible for designing the CLOTS study.

CLOTS: Author's Reply (The Lancet)

- CLOTS used TED as it was the brand that had been mostly extensively tested in RCT's (14 out of 17 trials used TED in the HTA systematic review) and showed that they reduced the risk of DVT in elective surgical patients.
- No other type of stocking has been reliably shown to reduce the risk of DVT in patients even if they are able to produce a specific compression profile on one particular test rig (HATRA)

CLOTS: Author's Reply (The Lancet)

- There are no data which reliably establish that the compression gradient determined with the HATRA equipment is related to clinical effectiveness in DVT prophylaxis.
- National guidelines should be based on reliable evidence from RCT's not extrapolated from small studies based on surrogate outcomes (such as increase in mean femoral blood velocity) in artificial test rigs.

Implementation of Evidence-Based AES

- Collaboration from Procurement and Thrombosis Committee
 - re choice of product
 - new products to be assessed by Thrombosis Committee
- Collaboration with Procurement and Ward Managers to ensure that
 - ordering codes are updated,
 - disposable tape measures available
 - supply of thigh length AES available
 - masking of other AES products
- Teaching programme with nurses re need to use thigh length if suitable for patient (help from Industry)

IPC and Footpumps



Report of the independent expert working group on the prevention of VTE in hospitalised patients, March 2007

- IPC: Urbankova et al (2005) Meta-analysis
- Assessed the effectiveness of IPC in preventing DVT in post-op patients.
- 2270 pts (15 studies)
- 1125 pts IPC v 1145 pts no prophylaxis
- IPC reduced risk of DVT by 60% compared with control group (RR 0.40, 95% CI; 0.29 – 0.56: $p < 0.001$)
- 4/15 studies (427/2270 pts) were general surgical pts

Elliott et al (1999)

- IPC v Foot pump in pts after non-lower extremity trauma
- 149 pts: DVT outcome measurement: USS
- 4/62 (6.5%) IPC v 13/62 (21%) FP
- $p=0.009$
- IPC:- 4 unilateral DVT v FP:- 7/13 bilateral DVT

NICE Clinical Guideline 46, April, 2007

- IPC or foot impulse devices can be used as alternatives or in addition to GCS while pts are in hospital
- If used on the ward, IPC or foot impulse devices should be worn for as much of the time as is practical while the pt is in bed or sitting on a chair.

Project Management (Loo, 2003)

- Conceptual Phase
 - Situational analysis
 - SWOT analysis
 - Project Description
 - Issues Impact Assessment
- Project Planning Phase
 - Work breakdown Structure (to form SMART objectives)
 - Project Planning Chart/Gantt Chart
 - Issues Analysis Chart

Project Management (Loo, 2003)

- Implementation Phase
 - Worksheet Progress Report
- Project Termination Phase
 - Debriefing/Structured Reflection
 - Critical evaluation of project management
 - Inform future practice
 - Dissemination via website, study days, book chapter

Implementation of IPC: leg + footcuffs

- IPC was previously only available in theatre, therefore, patients not benefiting from IPC on wards
- Meetings with all relevant stakeholders and funding agreements
- Procurement negotiated a new deal with commercial sector to provide and upgrade IPC devices
- Training of staff on new IPC device (Kings local requirement:-50% of staff need to be trained prior to introducing new equipment)
- Annual Medical equipment testing and availability of IPC devices via an equipment library

Electrical Calf Stimulation



Pictures kindly supplied by Amtec Medical Ltd

ECS:-Physiology + Effectiveness

- Electrical stimulation-induced contractions have been shown to activate the skeletal muscle pump and promote limb blood flow.
- NICE: guideline 46:- shows favourable results when used on its own or along with IPC and AES
- However, only very small numbers of pts in studies selected.

Electro-stimulation device to stimulate the popliteal nerve



Picture supplied by Phamarama

NICE Clinical Guideline 46, April, 2007: (draft 2009)



Encourage patients to mobilise, or arrange leg exercises if immobilised as soon as possible after surgery

Patient VTE info leaflet

- Includes:-
 - Who should read the guide?
 - What is VTE?
 - Is VTE common?
 - Who is at risk of VTE?
 - Will my risk of VTE be assessed?
 - What can I do to reduce my risk of VTE?
 - In hospital what will be done to reduce my risk of VTE?
 - What happens after I have been discharged from hospital?
 - Where can I find out more?

Nursing Care Plan

- Nursing Care Plan for Patient at risk of VTE

Problem:- Mrs ***** is potentially at risk of VTE due to hospitalisation

Goal:- Mrs ***** risk from VTE will be minimised

Nursing Interventions:-

- Provide verbal and written information regarding risk of VTE and thromboprophylaxis
- Assess risk using VTE RA tool or ensure Dr has completed RA
- Adhere to local and national guidance on reducing the risk of VTE
- Ensure risk assessment outcome has been documented in her records.
- Document which thromboprophylaxis modalities are appropriate depending on her level of risk.
- Other.....

Evaluation:-date:-.....

Coagulation Link Nurses



Janette
Matthew Whiting
Ward



Nikki
Cotton Ward

Coagulation Link Nurses (Local Champions)

- Development of VTE 'prevention' nursing care plan
- Development of 'PGD' (Patient Group Direction) for TP prescription
- Funded places on TP Study Days or 'Herts' TP course:-audit project
- Increase awareness of VTE risk assessment and TP (training)
- Specialist local knowledge base
- Incorporated into the nurses IPR (appraisal)
- Safe anticoagulation (NPSA and AC MDT)

VTE Leadership Summit

www.kingsthrombosiscentre.org.uk



Nursing Metrics: Mechanical TP

- Safety
 - Was the patient measured/contra-indications checked
 - Was the patient advised to report any side-effects or new VTE symptoms
 - Has the equipment been electrically tested/serviced regularly
- Efficacy/Operational
 - Are the staff trained in the use of the products
 - Are the products evidence based
 - Were the products prescribed appropriately according to VTE risk assessment
- Compassion/Satisfaction
 - Satisfaction with information (verbal/written given)
 - Satisfaction with nursing care whilst wearing products

Dissemination of information

- Website:- www.kingsthrombosiscentre.org.uk
- Visits to see our 'work in practice'
- Work with DOH/BSI/NHS Supplies/PASA to promote use of evidence based products and assist nationally in establishing nursing metrics around Mechanical TP for VTE prevention.
- Study Days
- Publications:-BJN/Thrombus/Book Chapters

National Nursing Network (NNN)

NNN National Nursing Network

020 3299 3570

contact@kingsthrombosiscentre.org.uk

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Risk Assessment

Assessing the risk of VTE is the first and most important step in the thrombosis prevention pathway. Once the at-risk patient is identified, they may be counselled and then appropriate thromboprophylaxis can be prescribed.



Learning

The vision remains that VTE risk assessment and prophylaxis provision will become the norm as part of all nurses' ongoing practice. Access this zone to stay up to date with training on VTE prevention.



Patient Information

With increasing public awareness of thrombosis, more patients are requesting information about preventing DVT and PE and the best treatment options if VTE is diagnosed.



Care Pathways

Care pathways for VTE are essential to standardise care delivery, helping to optimise the quality of care and improve clinical outcomes. Click here to access care pathways for VTE.

Nurse-led Research

COMING SOON

Nurses are essential to the assessment and early detection of problems in health, including VTE. We play a critical role ensuring that practitioners at all levels know what is required of them to prevent VTE, and we spearhead the implementation of VTE prevention in our centres. A central goal of the Exemplar Centre Network is to encourage collaborative research between nurses, including novel research on VTE prevention, establishing nursing VTE metrics, undertaking audits and assessing best practice. Access the Research pages here and find out how you can be part of this Exemplar Centre Network research initiative.

Conclusion

- Successful VTE mechanical TP implementation requires that it is available for use, evidence-based, and that patients and staff are educated on how to use them.
- Strong leadership and project management skills will improve the chances of successful implementation.

The End



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