

## Survey of Venous thromboembolism incidence in Mental Health Services for Older People (MHSOP) inpatient units

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**Declaration of interest** None.

### Abstract

**Aims and Method** Currently, venous thromboembolism (VTE) is the third most common cardiovascular disease after myocardial infarction and stroke in medical and surgical patients. Less is known about the incidence of VTE in older people using mental health services. We aimed to establish the incidence of VTE on inpatient wards for older people in Tees, Esk and Wear Valleys NHS Foundation Trust (TEWV), but also wanted to investigate current practice in terms of assessment of risk of VTE and treatment given. We conducted an incidence survey of VTE on older people's inpatient units in TEWV. We searched the data of inpatients discharged over a 2 year period from Mental Health Services for Older People in our electronic patient record system used in TEWV

**Results** 1495 individual patient records were searched. We found 17 confirmed VTEs (12 DVT and 5 PE) which is comparable to VTE incidence rates in general hospitals. There were no risk assessments done on admission and no thromboprophylaxis given. There was limited use of compression stockings and mobilisation.

**Clinical Implications** The study confirmed a significant VTE incidence and the need for increased awareness amongst staff working in MHSOP, especially the use of thromboprophylaxis, compression stockings and mobilisation. This can be met by improved training of VTE awareness and management for clinical staff and the use of a VTE assessment tool on MHSOP inpatient units.

## Introduction

The UK population is ageing: the percentage of people aged 65 and over has increased from 15 per cent in 1985 to 17 per cent in 2010, an increase of 1.7 million people. It is also projected that by 2035 those aged 65 and over will account for 23 per cent of the total population<sup>1</sup>. With this increasing age comes a higher risk of deep vein thrombosis (DVT) which may in turn lead to pulmonary embolism (PE). DVT and PE or venous thromboembolisms (VTE) as they are collectively known, is the third most common cardiovascular disease after myocardial infarction and stroke in medical and surgical patients<sup>2</sup>. VTE incidence for general medical patients is approximately 2% for patients at moderate to high risk and <1% for patients at low risk<sup>3</sup>.

Less is known however about the incidence of VTE in older people using mental health services. A clear association of VTE with antipsychotic use has been established<sup>4</sup>. This increased risk is low in absolute terms (4 additional cases per 10000 exposed patients per year), but appears to be more marked among new users of atypical antipsychotics<sup>5</sup>. Elderly patients are among the most common recipients of antipsychotics and the incidence of VTE is higher in over 65s<sup>6</sup>. Underlying risk factors present in older psychiatric patients may further contribute to the aetiopathogenesis of VTE. Older psychiatric patients often present with the established risk factors for VTE, for example poor physical health, obesity and dehydration. Additionally, immobilisation due to physical restraint and pharmacotherapy with benzodiazepines and antipsychotics may put older people using mental health services at a higher risk of VTE<sup>7</sup>.

One multicentre cross-sectional study conducted in subacute care departments, analogous to Mental Health Services for Older People (MHSOP) inpatient wards, detected DVT in 16% of patients using systematic ultrasound examination<sup>8</sup>. One NHS Trust providing mental health care investigated mortality and morbidity linked to VTE in the previous year and found 5 deaths primarily due to VTE (2 in MHSOP, 2 in substance misuse services and 1 in general adult MH services)<sup>9</sup>. However, rigorous scientific data such as randomised controlled trials for risk/benefit ratio and efficacy of prophylactic treatment is lacking in this patient group<sup>4</sup>. The benefit of thromboprophylactic treatment needs to be weighed up against the risks of adverse effects such as bleeding and drug interactions, especially in older people.

As there is very little good quality evidence on the incidence of VTE in psychiatric inpatients, we conducted an incidence survey of VTE on inpatient units in MHSOP in Tees, Esk and Wear Valleys NHS Foundation Trust.

## Method

We searched patient data from our electronic patient record system used in Tees Esk and Wear Valleys NHS Foundation Trust, namely Paris. Paris was first implemented in 2008 and all patient records are stored electronically on this system. In order to assess sufficient data, we searched the data of all patients discharged from MHSOP inpatient wards throughout TEWV over a 24 month period (July 2009 to June 2011).

This included all discharges from MHSOP inpatient units in North Durham, South Durham, North Tees, South Tees and North Yorkshire during this 2 year period. In all we searched the data of 1495 patient discharges.

The Paris system has the capacity to create a summary of an individual patient's casenotes. We were therefore able to do a word search of the "Casenote Summary", to search every patient's record throughout their admission. To identify all VTEs, we performed our search in 2 stages.

**Stage 1** – To identify all confirmed VTEs and PEs, we performed keyword searches using: "VTE", "DVT", "PE", "pulm", "embol" and "thromb".

**Stage 2** – Having identified a VTE or PE, we then recorded the following information for each patient with VTE:

1. Age
2. Gender
3. Psychiatric diagnosis
4. Whether a DVT or PE was diagnosed
5. Treatment given
6. Whether a VTE risk assessment was completed on admission
7. Outcome following treatment
8. All comorbidities
9. Antipsychotic exposure

## Results

By searching the 1495 individual patient records, we found 17 confirmed cases of VTE. Of the 17 cases, 12 (72%) were DVT's and 5 (28%) PEs, so the incidence can be estimated as 1.14 VTE cases per patient 100 discharges.

The mean age of the patients diagnosed with VTE was 78 years and patients' ages ranged from 60 to 89 years. There were more females with VTEs, as would be expected, with the Male to Female ratio 29% to 71%.

We found that the most common diagnosis of patients with VTE was depression, with vascular dementia the second most common diagnosis. 76% of patients were prescribed antipsychotics at the time of suffering a VTE, whilst the most commonly prescribed antipsychotic was olanzapine (60%).

Examining comorbidities revealed that, apart from age, most patients did not have clear risk factors for VTE. However malignancy, chronic physical disease and immobility were present for a number of patients.

In terms of VTE risk assessment and preventative measures (thromboprophylaxis and mobilisation), there were very little to be found with no record of VTE patients having received a VTE risk or thromboprophylaxis. Only 29% of patient's records had clear evidence that mobilisation was encouraged.

Finally, we also examined the treatment given following diagnosis of VTE and the outcome resulting from that. We found that patients were treated appropriately with Low Molecular Weight Heparin (LMWH) and warfarin, however the use of compression stockings were limited with only 5 of the 12 patients diagnosed with DVT receiving a compression stocking. In terms of outcome, 35% of patients (all diagnosed with PE) were transferred to an acute setting and there were no deaths recorded from the 17 VTE cases.

## **Discussion**

The incidence of VTE in our survey was comparable to incidence data from acute trusts which emphasises the importance of increased awareness of VTE amongst staff working in MHSOP. Despite the significant incidence, no patients had a recorded VTE risk assessment on admission. This should be addressed by the use of a VTE assessment tool as recommended by the Department of Health. Patients were appropriately treated with LMWH and warfarin, but the use of compression stockings was more limited. There was also limited evidence of mobilisation being considered as part of VTE management (29%). Both of these issues could be addressed with better training of MHSOP clinical staff via mandatory training and e-learning tools. In our survey the majority of the patients diagnosed with VTE were taking antipsychotics at the time. Although no clear conclusions can be made from this finding, it does emphasise the need for more conclusive evidence on the role of antipsychotics in the pathogenesis of VTE.

Looking at the limitations of our study, Paris has only a limited search capacity and we may not have accounted for all VTE cases as not all case records may have been recorded on Paris. However, we feel that an underestimation of VTE incidence should not negate the conclusions of our survey. We did not examine critical incident data, so patients dying on inpatient units as a result of VTE would not be included in our data. Similarly, mortality data from patients who may have died after being transferred to an acute setting were not examined.

## **Recommendations**

1. Our survey emphasises the need for increased awareness amongst staff working in MHSOP of the importance of VTE risk factors, screening and appropriate treatment and especially the use of thromboprophylaxis, compression stockings and mobilisation. These issues will be addressed with better training of MHSOP clinical staff via mandatory training and an e-learning tool.

2. A VTE assessment tool will be piloted on one MHSOP inpatient ward in our trust with a view to wider use in future in order to identify more patients who may benefit from thromboprophylaxis.
3. Our survey also emphasised the need for further investigation into the link between antipsychotic prescribing and VTE risk.
4. The results of this survey have been distributed to Clinical Directors and service managers in the trust and an action plan is being implemented.

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