COMPLIANCE OF PHYSICIANS INITIATING DIRECT ORAL ANTICOAGULANTS (DOAC) AS FIRST-LINE TREATMENT OF SUSPECTED OR CONFIRMED PULMONARY EMBOLISM (PE)

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ABSTRACT

Background: Pulmonary embolism (PE) is a significant contributor to global morbidity and mortality, with an annual incidence varying between 39 and 115 cases per 100,000 individuals. In the UK, annual incidence of PE ranges from 7–8 per 10,000 people. The risk of PE is nearly 9 times higher in cancer patients than in general population.

Aim: This study assessed physicians' compliance to National Institute for Health and Care Excellence (NICE) guideline for PE management and use of direct oral anticoagulants (DOACs) as the first-line treatment.

Method: A retrospective cross-sectional study was conducted in two cycles to evaluate compliance with the NICE guideline of PE management. Data was collected from medical records of 38 patients (9 cancer patients) with suspected or confirmed PE in the first cycle and 87 patients (24 cancer patients) in the second cycle using a structured questionnaire. We implemented intervention (i.e. clinical teaching, infographics in clinical area) between the cycles to increase the compliance. Descriptive statistical methods were used to illustrate the results.

Outcome: There was an increase in initiating DOAC as the first-line anticoagulant, rising from 16% in the first cycle to 38% in the second. Particularly, among cancer patients the practice increased from 33% in first cycle to 42% in second. There was also a notable improvement in the recording of body weight, from 68% to 96% of patients. A slight increase in the appropriate dosing of low molecular weight heparin (LMWH), an alternative of DOAC in contraindications (i.e. renal impairment), was observed, rising from 55% to 61%.

Conclusion: Physicians' compliance to NICE guideline for PE management, particularly the use of DOAC as first-line treatment improved as a result of interventions. We recommend further administrative interventions like regular clinical teaching, clinical audits, and structured DOAC prescription format will continue to improve the compliance.

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INTRODUCTION

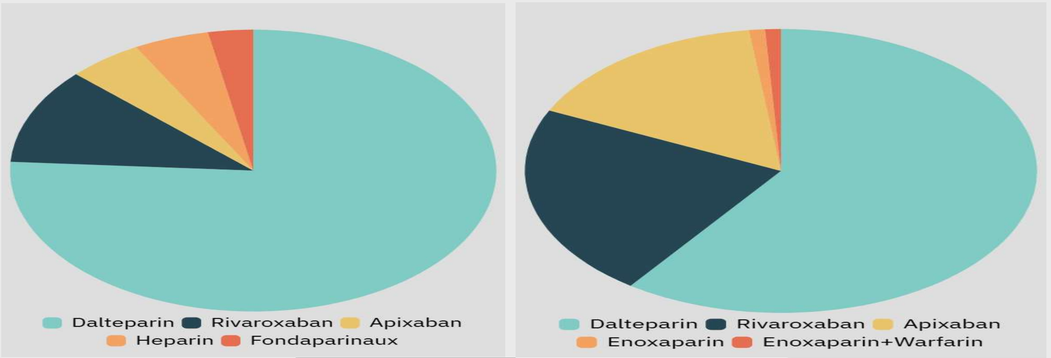
Pulmonary embolism (PE) is a significant contributor to global morbidity and mortality, with an annual incidence varying between 39 and 115 cases per 100,000 individuals.[1] In the UK, annual incidence of PE ranges from 7–8 per 10,000 people.[2] The risk of PE is nearly 9 times higher in cancer patients than in general population.[3]
This study aims to assess physicians' compliance with the National Institute for Health and Care Excellence (NICE) guidelines for PE management. Furthermore, it evaluates the adoption of direct oral anticoagulants (DOACs) as the first-line treatment, which has emerged as a preferred choice due to its convenience and favourable safety profile.[4-6] Understanding adherence to these guidelines is essential for improving patient outcomes and reducing the burden of PE on healthcare systems worldwide.

METHODS AND MATERIALS

This retrospective, cross-sectional study was conducted in two cycles from February 2023- March 2024 to evaluate compliance with NICE guidelines for the management of pulmonary embolism (PE). Data were collected from the Same Day Emergency Care (SDEC), medical wards including haematology & oncology ward. In the first cycle, data were collected from 38 patients (9 cancer patients) with suspected or confirmed PE, and in the second cycle, data were collected from 87 patients (24 cancer patients) with suspected or confirmed PE. Data was obtained from electronic patient records (EPR), using a peer-tested structured questionnaire that focused on the initial use of Direct Oral Anticoagulants (DOACs), compliance with body weight-based dosing for low-molecular-weight heparin (LMWH), and reasons for deviations from the guidelines. Between the two cycles, as part of PDSA teaching sessions for clinical staff and the display of infographics in clinical areas were organised to increase adherence to the guidelines. Statistical analyses and diagrams were prepared using Microsoft Office Excel to summarize and compare the results from both cycles.

RESULTS

- The initiation of DOACs as first line treatment for suspected or confirmed PE increased from 16% in the first cycle to 38% in the second cycle.
- Among cancer patients, the adoption of DOACs also saw an increase, rising from 33% in the first cycle to 42% in the second cycle.
- There was a slight increase in the appropriate dosing of LMWH from 55% to 61% according to body weight
- Additionally, there was a notable improvement in the recording of body weight, from 68% to 96%, which is crucial for accurate dosing of anticoagulants. The percentage of patients with recorded body weight increased



Choice of Anticoagulants: Comparison between 1st and 2nd Cycle

Comparison of audit findings		
Area of comparison	**First cycle**	**Second cycle**
DOAC as first-line anti-coagulant	16%	38%
Other anti-coagulant given when DOAC was indicated	55%	41%
DOAC given when contraindicated	17%	33%
Body weight recorded in Electronic Patient Record system	68%	96%
Dalteparin prescribed according to body weight	55%	61%
Adherence to anticoagulation guideline in cancer patients	33%	42%

DISCUSSION

- There is an increase in the compliance with prescribing DOAC as 1st line treatment for PE on iteration of the audit after the academic and administrative intervention. This reflects a growing preference for DOACs due to their advantages, such as fewer monitoring requirements and a lower risk of certain side effects compared to traditional anticoagulants.
- An increase in the prescription of DOAC is observed among cancer patients for whom DOAC is indicated according to most guidelines including NICE. This trend indicates a growing confidence in the safety and efficacy of DOACs for managing thromboembolic events in cancer patients, who often have complex medical needs.

DISCUSSION

- Most frequent contraindications for DOAC were hemodynamic instability, previous stroke, liver disease and renal impairment. However, in some of these cases DOAC was prescribed considering the compliance and benefit over the risk, thus there is an increase rate of DOAC prescription even in contraindication.
- Despite improvement, there is still room for improvement in prescribing the alternative anti-coagulant, LMWH according to body weight. This improvement highlights better adherence to dosing guidelines, which is particularly important in patients with renal impairment to avoid complications.
- Limitations include retrospective study design, unavailability of data regarding the rationale of anti-coagulant choice and selection bias.
- Based on the audit we recommend a DOAC prescribing orderset in the electronic patient record (EPR) to maximise the compliance and minimize error.

CONCLUSION

Interventions is proved to be effective to increased adherence among physicians to NICE guidelines for use of DOACs in managing PE as initial treatment. Continued improvements in compliance are expected through ongoing administrative interventions such as regular clinical education sessions, clinical audits, and standardized DOAC prescription forms. These measures will help to ensure consistent and appropriate treatment of PE patients specially among the patients with cancer.

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