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Short Communication

Anticoagulation: The Art of Improving Practice

Zahra Naderi*, Asif Mahmood, Zaheer Babar

Department of Cardiology, The Queen Elizabeth Hospital, Kings Lynn NHS Trust, England, UK

ABSTRACT

Following our 1st Audit cycle in January 2019, we introduced a proforma for documentation of anticoagulant initiation at The Queen Elizabeth Hospital (QEH), King's Lynn. A proforma consisting of six criteria was used in patients commenced on anticoagulation therapy to standardise the practice of prescribing. These six criteria consisted of coagulation profile, creatinine clearance, bridging therapy-if indicated, counselling before the start of therapy, referral to an anticoagulation clinic and finally the duration of therapy. The aim of this audit is to assess the effectiveness of utilising a standardised proforma in patients commenced on anticoagulation therapy.

Keywords: Anti-coagulant; Therapy; Creatinine; Cerebral haemorrhages

INTRODUCTION

Anticoagulation is indicated in a wide range of conditions including atrial fibrillation, prosthetic heart valves, venous thromboembolism treatment and prevention, thrombotic disorders, and other cardiac conditions [1,2]. Warfarin has been used for the last six decades, however with its narrow therapeutic range which requires regular monitoring, its use was gradually overtaken by that of direct acting oral anticoagulants, these include apixaban, rivaroxaban, dabigatran and edoxaban [3,4]. As per the Institute of Safe Medication Practices (ISMP), oral anticoagulants fall into the category of 'high alert' drugs due to their risk of harm in the clinical setting [5]. The most common adverse effect are haemorrhages, of which cerebral haemorrhages are the vast majority [6]. Although the new oral anticoagulants have been shown to have a reduced risk of intracranial haemorrhage, there still remains much uncertainty regarding for example, drug interactions and the management of bleeding [7].

As many severe drug side effects; including those that are fatal, occur after several months of treatment, a thorough assessment of the individual patient must be performed and all factors which can increase the risk of adverse reactions should be taken into consideration [6].

This audit intends to improve and optimise the practice of anticoagulation and to mitigate the risks of adverse effects from anticoagulation.

METHODOLOGY

In order to gather all the data for our audit, a data collection tool was created, and a list of patient hospital numbers was obtained from Information Services. The corresponding patient's medical records were collected from the Medical Records Library by the Clinical Audit department at The Queen Elizabeth Hospital. These medical records were reviewed against the data collection tool by the designated auditors. Data was then collated into an excel spread sheet/transferred to an excel spread sheet, analysis was undertaken, and the findings were compared with the 1st cycle findings.

Sample/Cohort

A random sample of 23 patients who were commenced anticoagulation in the hospital setting in the period from March 2019 to October 2019 was collected for use in our audit.

Exclusion/Inclusion

In this study patients who have already been on anticoagulation were excluded.

Range of data

The ranges of data that we used in this study were patients admitted to all medical wards at the QEH or discharged from Ambulatory Care.

Interpretation of findings

The results of the study clearly illustrate that following the introduction of a standardised model, anticoagulation practice at The Queen Elizabeth Hospital improved significantly. 100% of patients were counselled on anticoagulation after the initiation of

Correspondence to: Zahra Naderi, Department of Cardiology, The Queen Elizabeth Hospital, Kings Lynn NHS Trust, England, UK; E-mail: z.naderi@hotmail.co.uk

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a proforma compared to only 52% prior to its use (Figure 1). In 91% of patients, coagulation profile was performed in comparison to only 84% in the first audit cycle. If bridging therapy was indicated, this was prescribed in 100% of patients however this was completed in 71% of patients prior to the introduction of a standardised proforma. Referral to the anticoagulation clinic was made in 91% of patients, in comparison to 38% in the first cycle. Creatinine clearance was only calculated in 3% of patients prior to the introduction of a standardised proforma; however, this value increased to a staggering 70% in our audit cycle. Similarly, the duration of anticoagulation was mentioned in only 22% of patients, however the proforma resulted in an increase to 74% (Table 1).

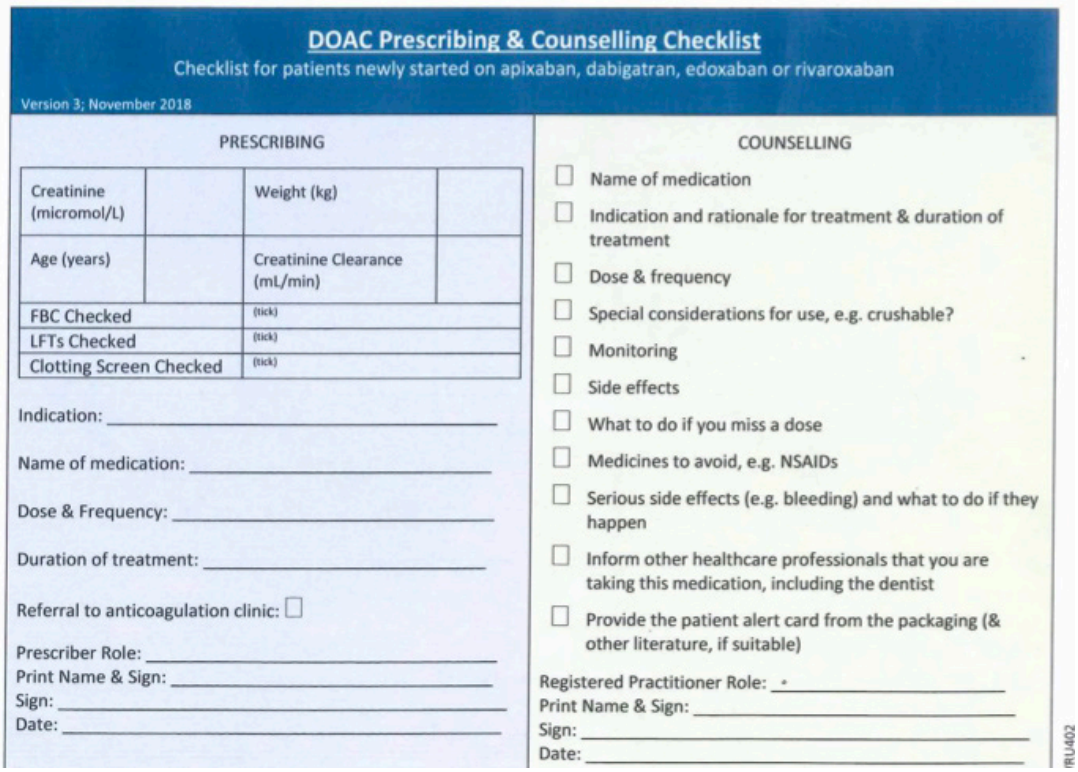
With any study, it is important to highlight any issues that have risen, one to mention is that as a result of the random sampling method, most of the cases audited in our study were atrial fibrillation. It was difficult to include all different cases needing anticoagulation due to the small sample size.

DISCUSSION AND RECOMMENDATIONS

Our study has illustrated significant improvements in the practice of anticoagulation prescribing. Following this study, we recommend a standardized proforma to allow correct and clear documentation for the prescription of anticoagulants. Correct documentation is vital in clinical governance so that we continue to deliver a high standard of care to our patients. Furthermore, this ensures that the correct dose of anticoagulation is prescribed as the proforma uses creatinine clearance as one of its variables which is important when calculating the dosage. This in turn will result in a reduction in risk and thus significant improvements in patient care. This concept which has proven to be effective can then be applied across multiple departments for a number of different therapies. All these factors contribute to developing continuity of care for our patients and the practice of clinical governance. In most cases, medication prescription errors can be prevented through education and strategies that focus on improving documentation and training, thus minimizing any potential harm that may be caused [8] (Figure 2).

Table 1: Table illustrating data from 1st and 2nd audit cycle.

Criteria	Standard	Actual % (1st Cycle)	Actual % (2nd Cycle)	Variance
Coagulation profile must be performed prior to start of anticoagulation	100%	84%	91%	9%
Creatinine clearance must be calculated prior to start of anticoagulation	100%	3%	70%	30%
If Bridging therapy is indicated it must be prescribed per the hospital guidance	100%	71%	100%	0%
Counselling before the start of anticoagulation is mandatory	100%	52%	100%	0%
Referral to anticoagulation clinic is recommended	100%	38%	91%	9%
Duration of anticoagulation should be mentioned	100%	22%	74%	26%


DOAC Prescribing & Counselling Checklist

Checklist for patients newly started on apixaban, dabigatran, edoxaban or rivaroxaban

Version 3; November 2018

PRESCRIBING

Creatinine (micromol/L)		Weight (kg)	
Age (years)		Creatinine Clearance (mL/min)	
FBC Checked	(tick)		
LFTs Checked	(tick)		
Clotting Screen Checked	(tick)		

Indication: _____

Name of medication: _____

Dose & Frequency: _____

Duration of treatment: _____

Referral to anticoagulation clinic: ☐

Prescriber Role: _____

Print Name & Sign: _____

Sign: _____

Date: _____

COUNSELLING

- ☐ Name of medication
- ☐ Indication and rationale for treatment & duration of treatment
- ☐ Dose & frequency
- ☐ Special considerations for use, e.g. crushable?
- ☐ Monitoring
- ☐ Side effects
- ☐ What to do if you miss a dose
- ☐ Medicines to avoid, e.g. NSAIDs
- ☐ Serious side effects (e.g. bleeding) and what to do if they happen
- ☐ Inform other healthcare professionals that you are taking this medication, including the dentist
- ☐ Provide the patient alert card from the packaging (& other literature, if suitable)

Registered Practitioner Role: _____

Print Name & Sign: _____

Sign: _____

Date: _____

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Figure 1: Prescription proforma.

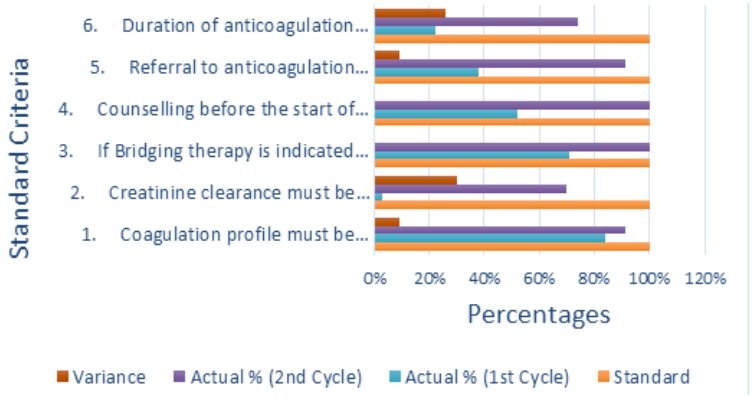

Figure 2: Graph comparing standard criteria before and after proforma sticker.

CONCLUSION

In conclusion, the results demonstrate that standardised proforma documentation significantly improves anticoagulation practice in a hospital setting, thus optimising patient care. The results illustrated that 100% of patients were counselled on anticoagulation prescription which is essential in good patient care so that risks, benefits and outcomes are clearly relayed to patients when commencing a new medication, particularly when it involves starting that of an anticoagulant. Furthermore, counselling involves discussing possible side-effects, monitoring requirements, medicines to avoid and what to do if a dose is missed. In addition, referral to an anticoagulation clinic which was another variable in our study is vital to ensure continuity of care for the patient. All variables included in our proforma are extremely important when commencing anticoagulation therapy, thus this study highlights the significance of a standardised proforma in improving anticoagulation prescribing.

Although all the standards were not 100% met and there is certainly room for improvement, illustrating the importance of good clinical practice through audits and quality improvement projects highlights areas in clinical care that we as healthcare professionals must be mindful of. Additionally, presentation of this audit and the results obtained in a number of different clinical settings will contribute in improving the outcome and encourage others to view one aspect of medical care through our lens.

REFERENCES

1. Julia S, James U. Direct oral anticoagulants: A quick guide. Eur Cardiol. 2017; 12 (1): 40-45.
2. Vazquez S, Rondina MT. Direct Oral Anticoagulants (DOACs). Vasc Med. 2015; 20 (6): 575-577.
3. Harter K, Levine M. Henderson SO. Anticoagulation drug therapy: A review. West J Emerg Med. 2015; 16 (1): 11–17.
4. Loo SY, Dell'Aniello S, Huiart L, Renoux C. Trends in the prescription of novel oral anticoagulants in UK primary care. Br J Clin Pharmacol. 2017; 83 (9): 2096-2106.
5. Amaraneni A, Chippa V, Rettew AC. Anticoagulation safety. 2020.
6. Mulholland S, Lomas P. Oral Anticoagulants (VKA and DOAC). Guidelines for prescribing, monitoring and management. Wirral Health & Care Commissioning. 2022.
7. Millar CM, Laffan MA. Drug therapy in anticoagulation: Which drug for which patient? Clin Med (Lond). 2017; 17 (3): 233-244.
8. Velo GP, Minuz P. Medication errors: Prescribing faults and prescription errors. Br J Clin Pharmacol. 67 (6): 624-628.