

Venous thromboembolism in urothelial bladder cancer - scope of the problem and patients' perspectives: VTE-UBC

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ABSTRACT

Aim: This study investigates the scope of VTE in people with UBC in the UK and explores their understanding of VTE from their experience of having cancer and anti-cancer treatments, alongside the perspectives of healthcare professionals (HCPs).

Materials and Methods: A sequential mixed-methods study was applied: Phase I - quantitative, exploring the incidence and risk factors for VTE in UBC, by cohort of UK Hospital Episodes Statistics (HES) data and a retrospective case-control analysis using data from two UK NHS trusts. Phase II - semi-structured interviews among patients with UBC and HCPs, utilising thematic analysis.

Results: VTE incidence in people with UBC was around 6.0 per 1000 patients, determined from UK national datasets. Cystectomy and stage IV disease significantly (OR 2.88, 95% CI 1.63-5.07, $P < 0.001$; and OR 4.41, 95% CI 1.85-10.50, $P = 0.002$ respectively), whilst chemotherapy showed borderline statistical significance for risk of VTE (OR 2.56, 95% CI 1.03-6.32, $P = 0.041$). Three major themes emerged from the interviews: 'all about the cancer' (thrombosis risk was not a priority for patients with UBC), 'a labyrinthine process' (information about VTE was bewildering and compartmentalised) and 'improving the poor deal' (suggestions offered to improve communication around VTE were identified).

Conclusions: VTE is an important clinical problem in patients with UBC. The analysis of this study confirms that the treatment type and metastatic disease are the main risks factors associated with increased VTE risk, HCPs can build on the findings of this study to progress individualised care through multidisciplinary, and patient-centered VTE prevention plans during inpatient encounters.

KEY WORDS: VTE, bladder cancer, cancer-associated thrombosis

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INTRODUCTION

Urothelial bladder cancer (UBC) is one of several cancer types where people are at high risk for venous thromboembolism (VTE). According to Sandhu et al. (2010), the risk of VTE among UBC patients is highest within the first six months of diagnosis [1]. Treatment for UBC may include surgery (most commonly cystectomy or transurethral resection of bladder tumour (TURBT)), chemotherapy, or a combination, each of which carry their own associated risk of VTE. In people with UBC who undergo cystectomy, rates of VTE are estimated to be between 3% and 19.1% [2, 3]. The cumulative incidence of VTE continues to rise long after cystectomy, but the highest VTE incidence rates occur 20 days after surgery [4]. Medical comorbidities may also increase the risk of VTE in UBC patients.

In England and Wales, urologists and medical oncologists are expected to follow the National Institute for Health and Care Excellence (NICE) guidelines when embarking on formulation of a treatment regimen. International studies mentioned that cystectomy and systemic chemotherapy are associated with raised VTE risk, analysis of UK data quantifying these risks in patients with UBC were limited. The systemic review in this study summarised evidences on association between VTE risks and UBC, but this could not provide UK data on incidence according to receiving systemic chemotherapy or metastatic stage of UBC. Thus, the current study was planned to find this gap using UK national and local NHS datasets.

As such, treating UBC patients might vary in relation to other countries. In the UK, there limited specific data

assessing VTE incidence according to the type of treatment and the stage of the UBC. Although published international studies and our own recent systematic review evidence found increased VTE risk after cystectomy and receiving systemic chemotherapy, robust primary UK data mainly examining receiving chemotherapy and metastatic disease in UBC have been insufficient. Therefore, the present study analyses UK national data and NHS local data to specify this evidence gap using UK national and local NHS datasets [5].

By providing information about signs, symptoms, risk factors, and thromboprophylaxis measures to people with UBC, HCPs strive to reduce overall risk and associated morbidity of VTE. A lack of understanding may mean that patients do not present early enough, which may lead to further complications [6]. Therefore, it is essential to listen to people with UBC, explore their experience of cancer and seek their understanding of VTE.

AIM

The VTE-UBC study objectives were thus as follows; (1) establish the incidence, risk factors and associations of VTE in bladder cancer patients using UK data; and (2) explore patients' understanding of VTE, including their understanding of risk, the content of information received and gaps in communication, alongside HCPs' perspectives on VTE and UBC.

This study is based on the doctoral thesis of Dr. Omar Riyadh Abdullah, titled "Venous thromboembolism in bladder cancer patients: a scope of problem and patients' perspectives", submitted to the University of Warwick, United Kingdom, in 2021 [7].

MATERIALS AND METHODS

The VTE-UBC study, consists of two Phases, making up a 'mixed methods' study. All quantitative data used in this study were obtained from UK primary records. Phase I embraces a quantitative paradigm and Phase II, qualitative.

PHASE I

STUDY DESIGN AND DATA SOURCES

The purpose of the quantitative phase was to investigate VTE incidence and risk factors in patients with UBC in the UK. Two distinct sets of data were collected.

A quantitative retrospective cohort analysis was carried out to assess VTE incidence in UBC patient groups. Data from the UK's 'Hospital Episode Statistics' (HES) were obtained for all people with UBC, who had

undergone systemic chemotherapy treatment and/or radical cystectomy between April 2013 and April 2018 to identify those re-attending with VTE within 12 months in NHS trusts throughout England.

Following this, a retrospective case-control (1:2) method was applied to the local data (large teaching hospitals where authors OA and/or AY had worked) to assess difference in the rates of VTE with exposure to a defined risk factor. These data were collected from two independent NHS trusts; NHS University Hospitals Coventry and Warwickshire (UHCW) and Queen Elizabeth Hospital Birmingham (QEHB), from the previous 10 and 7 years respectively. Patients were included if they were adults (18 years old and over) with histologically or clinically confirmed diagnosis of bladder cancer with or without VTE. They were excluded if they had a history of VTE prior to UBC diagnosis.

Risk factors assessed were as follows; VTE incidence rate in UBC patients treated with or without systemic chemotherapy within 12 months of starting to receive chemotherapy, VTE incidence in UBC patients treated with or without cystectomy within 12 months post-surgery, and any association between VTE events. Data was analysed using SPSS.

DATA ANALYSIS

For HES data, an estimation of the incidence rate and trend of VTE in patients with UBC was conducted over 5 years, between 2013 and 2018.

For local data, the VTE incidences of patients with UBC were estimated from the cohort data received from informatics offices at QEHB and UHCW. After this, case control study design was used to calculate the odds ratio to determine whether exposure to a specific confounder is a risk factor of VTE:

- Gender (Male, Female)
- Urothelial carcinoma (Yes, No)
- Grade (1,2,3)
- Has had chemotherapy (Yes, No)
- Has had surgery, cystectomy (Yes, No)
- Stage (non-muscle invasive, muscle invasive, metastatic)
- Has had chemotherapy plus cystectomy (Yes, No)
- Presence of comorbidities (Yes, No)

Multivariate linear and logistic regression were used to assess the independent associations between baseline VTE complications and possible risk factors. Comorbidities comprising hypertension, diabetes mellitus, heart failure, ischemic heart disease, chronic obstructive pulmonary disease, pneumonia and second type of cancer, were identified as confounders during the logistic regression analysis.

PHASE II

STUDY DESIGN

Phase II of VTE-UBC research a qualitative research methodology was used. Individual semi-structured interviews with people with UBC and HCPs. Several key questions were asked, using a guide (Appendix 1).

The NHS Trusts - UHCW and QEHB - were chosen as research sites for conducting phase II. Patients and HCPs were recruited by direct contact with the Research and Development offices (R&D) at QEHB and UHCW.

Purposive sampling was used to recruit participants in July 2019 at UHCW and in October 2019 at QEHB and was completed on 1 March 2020 at both hospitals. People with UBC at high VTE risk were chosen to be recruited for the study.

Eligible patients were recruited via a clinical nurse specialist (CNS), or via approach during their visit to the outpatient clinic. HCPs who had clinical responsibility or delivered care to people with UBC were recruited via email invitation. This included surgeons, medical oncologists and nurses.

DATA ANALYSIS

Audio-recordings were anonymized and transcribed by an expert at Warwick Medical School. Thematic analysis was then undertaken, in which the researcher compared within and between data from the interviews to gain insights into participants' views and understandings of the risk of thrombosis.

ETHICAL APPROVAL

This article has ethical approval University of Warwick. Every process followed the international research ethics protocols and had sufficiently strong measures to ensure confidentiality and privacy of data of the participants.

RESULTS

PHASE I

From HES data in England, there were 1076 patients with UBC and new VTE recorded in between 2013 and 2018. In total 87% of these UBC patients were above 60 years old, and 75% were male.

Within this data set, the annual VTE incidence in UBC patients was found to be 6 in every 1000 patients (0.6%), while the VTE incidences in patients who had under-

gone cystectomy and chemotherapy were 14 per 1000 (1.4%) and 29 per 1000 (2.9%), respectively.

Across the two local NHS trusts, 2892 patients with UBC were recorded in total between 2007 – 2018 in UHCW and 2011 – 2018 in QEHB. Across both trusts, the annual VTE incidence in patients with UBC was around 6.1 per 1000 (0.61%). This increased to 56 per 1000 (5.6%) in people with UBC treated with radical cystectomy, and 76 per 1000 (7.6%) in those treated with chemotherapy. In patients who received both chemotherapy and radical cystectomy, the incidence was 88 per 1000 (8.8%). As in the HES data, most patients were aged 60 years or older at the time of diagnosis and the majority (73.7%) were male.

Across both NHS trusts, 176 patients with UBC and VTE were recognised and matched with 352 control subjects to perform unadjusted and adjusted logistic regression analysis. Treatment type, disease stage and the presence of a second cancer (a second cancer is a new cancer that's unrelated to previous bladder cancer) have significant association with VTE in people with UBC. This regression model demonstrated that there was a significant association of treatment and stage with VTE ($P < 0.001$) (Table 1).

In the combined trust analysis, the odds ratio of VTE for patients with UBC who had a cystectomy or chemotherapy were significantly higher in patients who had a trans urethral resection of bladder tumour (TURBT), with statistically significant differences. Patients who had cystectomy ($OR = 2.64$, 95% CI 1.49-4.68; $P = 0.001$). Chemotherapy was associated with a borderline increase in VTE risk ($OR = 2.40$, 95% CI 0.96-5.99; $P = 0.061$). For patients who had both chemotherapy and cystectomy the odds ratio was about 7 times greater than for those patients who had TURBT, the difference being statistically significant: $OR = 7.45$, 95% CI 1.86-10.62; $P = 0.001$).

A further logistic regression model explored the association of VTE with all comorbidities (except second type of cancer), treatments and stage (Figure 2). Five types of comorbidities were examined against their association with VTE. It was found that only 'second type of cancer' had a significant risk of VTE ($OR = 0.23$, 95% CI 0.10-0.53; $P = 0.001$). Other co-morbidities, as well as chemotherapy, had no significant risk of VTE with ($OR = 2.40$, CI 0.96-5.99; $P = 0.061$) (Table 2).

PHASE II

PARTICIPANT CHARACTERISTICS

PATIENT GROUP

Patients with muscle-invasive UBC who had undergone a cystectomy and/or received systemic chemotherapy ($n = 18$) consented to participate in this qualitative study.

Table 1. Association of VTE in patients with UBC with treatment, stage, co-morbidities, gender, histology, and grade of UBC at QEHB

Variables	QEHB (2011-2018)		Unadjusted		* Adjusted	
			OR (95%CI)	P value	OR (95%CI)	P value ^v
	Cases (n=55)	Controls (n=110)				
Treatment						
TURBT	16 (29%)	79 (71.8%)				
Cyst.	20 (36.3%)	23 (20.9%)	4.29 (1.92-9.60)	0.012	4.61 (1.12-19.00)	0.034
Chemo.	4 (7.2%)	6 (5.4%)	9.87 (1.66-58.58)	≤0.001	4.81 (0.39-59.20)	0.220
Chemo & Cyst.	15 (27.2%)	6 (5.4%)	12.34(4.15-36.66)	≤0.001	11.89(1.91-73.84)	0.008
Stage						
NMIBC	18 (32.7%)	81 (73.6%)				
MIBC	22 (40.0%)	29 (26.3%)	3.66 (1.71-7.84)	0.001	0.70 (0.15-3.13)	0.643
Metastatic	15 (27.2%)	2 (1.8%)	33.75(7.08-160.82)	≤0.001	8.54 (1.32-55.22)	0.024
Co-morbidities	30 (54.5%)	40 (36.6%)	0.51(0.26-0.98)	0.046	0.76 (0.34-1.67)	0.496
Gender						
Male	42 (76.3%)	82 (74.5%)	0.90 (0.42-1.93)	0.799		
Female	13 (23.6%)	28 (25.4%)				
Histology						
Urothelial	52 (94.5%)	94 (85.4%)	0.33 (0.09-1.21)	0.097		
Non-urothelial	3 (5.4%)	17 (14.5%)				
Grade						
1	2 (3.6%)	6 (5.4%)				
2	2 (3.6%)	7 (6.3%)	1.36 (0.64-2.90)	0.422		
3	51 (92.7%)	97 (88.1%)				

Notes: OR – odds ratio, Cyst.– Cystectomy, Chemo.– Chemotherapy, Uro.-Urothelial TURBT – Trans Urethral Resection of Bladder Tumour, MIBC – Muscle Invasive Bladder Cancer, MI – Muscle Invasive, NMIBC – Non-Muscle Invasive Bladder Cancer, MI – Muscle Invasive

*Adjusted odds ratios were calculated from a multivariable logistic regression model that included treatments received (cystectomy, chemotherapy, cystectomy with chemotherapy), stage at diagnosis (expressed in non-muscle-invasive, muscle-invasive, and metastatic), comorbidities (have comorbidities vs no comorbidities).

Source: Compiled by the authors of this study

HEALTHCARE PROFESSIONALS' GROUP

Thirteen HCPs were recruited for interviews; four clinical nurse specialists, five urologists and four clinical oncologists.

Codes, categories, subthemes and major themes were elicited from the data (Figs 1 and 2). Three major themes, namely 'All about the cancer', 'A labyrinthine in process', and 'Improving the poor deal' describe the communication around VTE and patients' understanding of VTE.

THEME 1: ALL ABOUT CANCER

Receiving a cancer diagnosis is scary and may cause great shock accompanied by psychological distress. Patients have to manage these emotions alongside receiving large quantities of new information about their cancer. There-

fore, receiving information on potential sequelae such as VTE, can be difficult to assimilate and retain.

Urothelial bladder cancer patients were generally overwhelmed with their cancer diagnosis, and this was their primary focus.

"I was more concerned about the bladder cancer than I was the blood clots so it was just part of the process as far as I could see... yes, there were too many other emotions going on to focus on one particular aspect of it... it was more the cancer risk than thrombosis risk!" P014

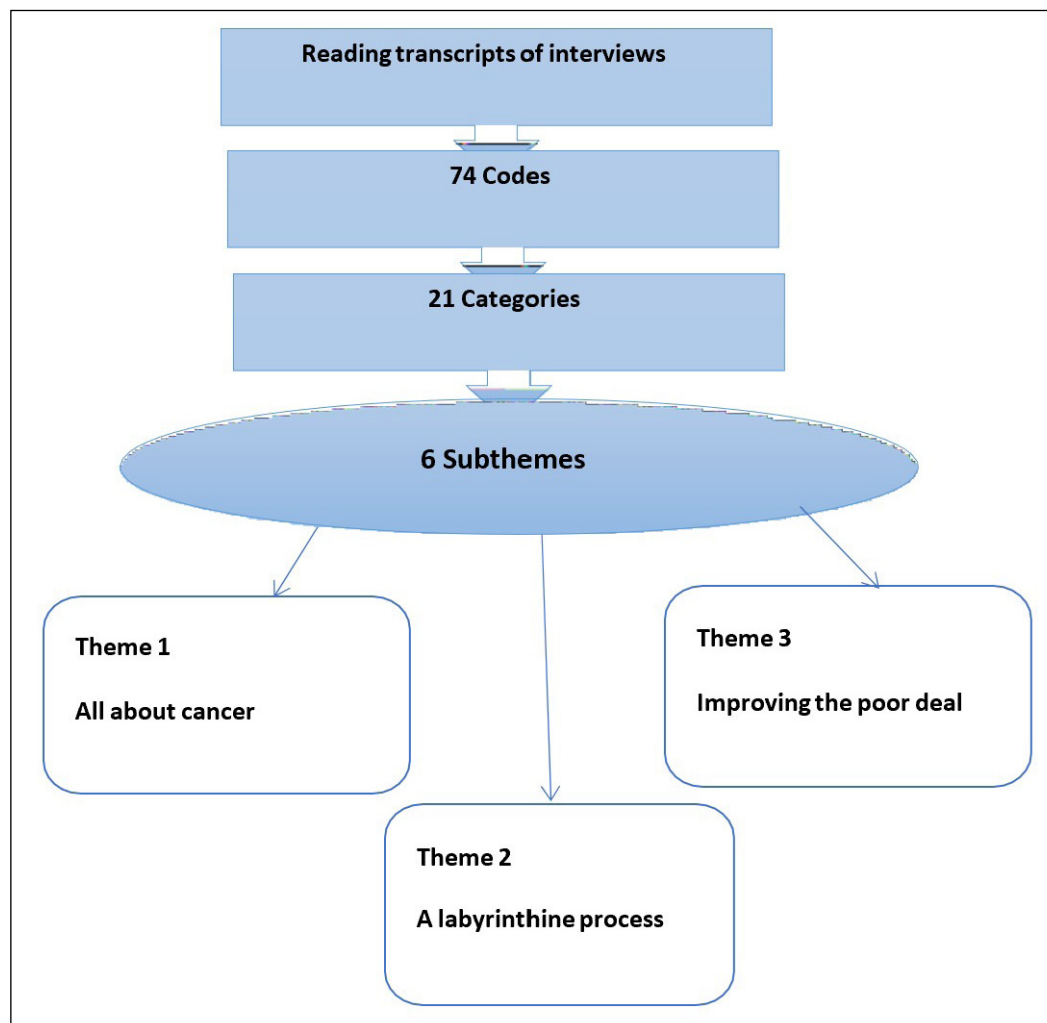
Bladder cancer patients were preoccupied with their cancer and thus did not pay as much attention to information about blood clots during their appointments. This was also noted by HCPs:

"They are primarily focused on cancer, and they want to you know get to the treatment and put it behind

Table 2. Association of VTE in patients with UBC with treatment, stage, co-morbidities without 2nd cancer and 2nd cancer at QEHB and UHCW

Variables	OR (95%CI)	P-value
Treatment		
TURBT		
Cystectomy	2.64 (1.49-4.68)	0.001
Chemo.	2.40 (0.96-5.99)	0.061
Chemo. & Cystectomy	7.45 (3.14-17.71)	≤0.001
Stage		
NMIBC		
MIBC	0.70 (0.38-1.30)	0.266
Metastatic	4.45 (1.86-10.62)	0.001
Co-morbidities (no Ca)	0.98 (0.65-1.48)	0.944
Second cancer	0.23 (0.10-0.53)	0.001

Source: Compiled by the authors of this study

**Fig. 1.** Process to establish main themes

Source: Own materials

them as best as they can so most people would listen to that and take the advice... occasionally some people are alarmed but most people are too focused on cancer." HC012

Patients with UBC experienced a high burden of information at all stages of the cancer care continuum. They therefore struggled to focus on VTE and had difficulties recalling any information provided on VTE.

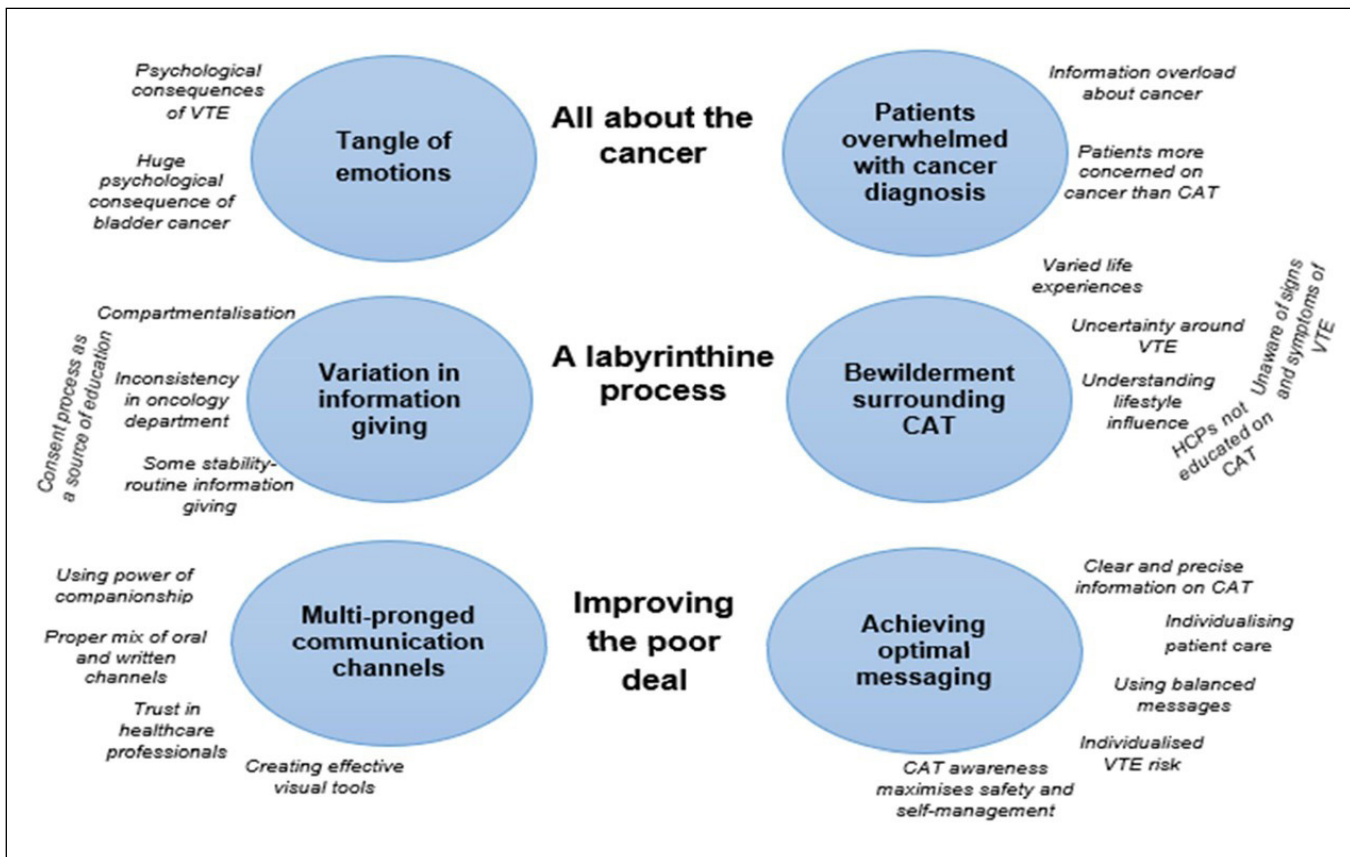


Fig. 2. Categories, main themes and subthemes

Source: Own materials

"No, it was like an information overload on bladder cancer that's why (my mind)...Err... no going back to it as I say we had an information overload...we had that much information leaflets... verbal..." P007

Interviews with patients revealed that they were overwhelmed, with their cancer diagnosis, tangled up in emotions around cancer and lacked information around VTE.

THEME 2: A LABYRINTHINE PROCESS

Patients generally had poor or limited information on VTE and its relationship with UBC, and the communication process around VTE between HCPs and UBC patients varied. Patients often needed to be treated in more than one department, such as the urology department and an oncology department. HCPs in each department have their own approach regarding communication about VTE.

In the urology department, nurses and urologists took a while to inform each UBC patient about the risk factors and complications of the cystectomy, including VTE. They explained the risk of clots as part of the routine information they provided in their pre-surgical counselling to patients who had a cystectomy and generally

explained how VTE can be prevented. The HCPs in this study talked about anticlotting injections and stockings, and some also routinely offered lifestyle advice:

Yes, specifically when they're having surgery...a bladder removal operation and tell them about the measures that we take to prevent thromboembolism such as Heparin prophylaxis and compression stockings." HC007

"If they maintain activity then the risk can be reduced but beyond that I don't give them any formal information it's just a short discussion... it's a short conversation about it." HC0010

Patient selection of whom to discuss VTE with or with whom not to do so did not depend on patient characteristics (weight, mobility, smoking, family history, etc.), but mainly on the type of treatment and related risk of VTE:

"We don't choose whether they're male or female or anything like that it's just that if they have that surgery then yes, we'll go through it with them." HC004

Overall, HCPs were keen to discuss awareness of VTE including blood clots, risk factors for developing blood clots, thromboprophylaxis measures and understood the importance of the communication process to minimise the risk of VTE.

THEME 3: IMPROVING THE POOR DEAL

Informing UBC patients about blood clots aims to improve outcomes and empower decision making and prevention. In general, HCPs also assumed that effective communication around blood clots may encourage self-care and awareness:

"Yes, potentially yes.... I think it's something that they can actually do, something for themselves." HC001

Both methods on providing this information, and ways in which the patient wished to receive this information, were varied. One patient mentioned that he needed the facts without adding any emotion, as he believed the facts represent the reality:

"I think just the message... add fear to it I mean if you lay out the facts... the facts will speak for themselves there's no need to put a fear factor into it I just need to know the information!" P014

The vast majority of patients preferred a combination of verbal and written communication. Patients extract more information from reading because the leaflets remind them about the information they may have missed during verbal communication:

"I think it would be best to have it written down... cos I think people take it in more when they're reading it rather than listening... I think if they've got something to read keep picking up and reading about it I think that's... rather than... I think that's better than just being told... cos you can be told, and you can walk out and there it's gone!" P016

Most HCPs suggested using visual tools such as pictures and figures to explain what VTE is and what the associated risk factors. HCPs expected the viewer to grasp and understand clearly what VTE is and its related risk by using pictures and figures:

"So, the ideal is using pictures..." HC005

"Right I feel the best thing would be pictures and your figures so pictures and figures together will make a huge difference. You tell them what thromboembolism is and why you get thromboembolism and the ways that we can reduce the risks of thromboembolism." HC006

Companions are central to the psychological and physical support of cancer patients, albeit some patients do not have companions. Cancer patients required mental support as much as they needed medical support.

"Yeah I... you know I bring a relative with me cos there's a lot you'll be shown you know what I mean if you are not computing what's been said at least you've got a relative there that might... you know have picked up on that." P006

DISCUSSION

This study, to our knowledge, is the first mixed-methods study which explores the incidence rate and risk

factors for VTE in patients with UBC using UK data, in conjunction with identifying gaps in patient education that hinder the patients' role in VTE prevention.

Our findings revealed that VTE for people with cancer is a significant clinical problem often overlooked and neglected due to the overwhelming attention given to anti-cancer treatments and 'surviving' cancer. Knowing that VTE is the second most common cause of death in ambulant cancer patients [8] affords a standpoint for change, using the perspectives of both patients and healthcare professionals. Understanding the scope and being able to communicate this risk to patients is essential in making this change.

In this study, the statistical analysis of national and local UK data on VTE in UBC patients showed that the overall VTE incidence in the UK was lower than has been found in the previous UK literature [9]. Incidence was found to be highly connected to cancer profile and treatment type. Logistic regression analysis showed cystectomy, cystectomy with systemic chemotherapy, metastatic stage and a second type of cancer are associated with a significantly increased risk for VTE. Moreover, this study demonstrated that patients who had both cystectomy and chemotherapy appeared to carry the highest risk for VTE; greater than those who underwent cystectomy only. A systematic review and meta-analysis of chemotherapy risk of VTE in UBC showed similar results, that is systemic chemotherapy raises the risk for VTE beyond the already increased risk imposed by surgery and cancer [9]. Further studies should look to investigate the strength of this association further in order to inform guidelines appropriately.

Phase II of the study confirmed that the HCPs and patients understandably focus mostly on their cancer rather than sequelae such as VTE.

Some patients in this study experienced psychological distress including fear, anxiety, stress, and depression, which is consistent with other studies [10]. These strong emotions can make the comprehension of complex information difficult and may affect patients' perceptions of VTE [11]. The overwhelmed mental state in cancer patients may affect patients' ability to take in all aspects of medical information, including VTE preventive measures [12].

In this study, effectiveness was demonstrated to be through the use of clear factual language, through verbal and written means, and supported by the use of diagrams and pictures. The supportive upshots of having a companion during clinical consultations also improved patients' awareness of VTE [13].

The overall outcome of this study has shown there is an opportunity here for all clinicians to put into practice simple steps during patient encounters, to identify

and communicate VTE risk and mitigation strategies to patients. All patients with UBC should be assessed for their risk for VTE as part of a standard procedure and then individualised information can then be offered. This should be achieved in conjunction with effective communication skills and strategies, with awareness of the challenges patients face when receiving information in the context of a diagnosis of UBC. This move will help to improve communication around VTE, which should provide better understanding of VTE, encourage patients' adherence to thromboprophylaxis and decrease VTE events within this group.

CONCLUSIONS

VTE-UBC is, to our knowledge, the first mixed-methods study exploring VTE in people with UBC in the UK. This study highlights the clinical importance of VTE in UBC patients, and the challenge of communicating this risk effectively to patients. By presenting the scope of the problem using UK national and local NHS data, and by integrating patient and healthcare professionals' perspectives, this study should be used to inform clinicians and clinical guidance in both what information regarding

VTE should be communicated to people with UBC and how it can be communicated effectively. Further studies should look to strategies implementation methods and assess their effectiveness. After describing the problem, this study provides some points for improving VTE prevention in UBC care:

- Routine thrombosis risk assessment should be integrated into standard UBC care, especially in advanced stage and when need combined treatment.
 - Multimodal communication combining verbal discussion, written information and visual tools can improve patients' understanding about VTE risks.
 - Standardised patient education on VTE signs, risks and prevention should be communicated in clear language through out the treatment pathway.
 - It is important to involve family members or companions during consultations for better understanding and retain important information.
 - More studies required to evaluate the implementation and effectiveness of these strategies to reduce VTE incidence within patients with UBC.
- In this way, VTE prevention in UBC can become not only more evidence-based, but also more patient-centred.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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Appendix 1. Interview topic guide

Bladder cancer patients

Preamble / Introduction – thank you and purpose of the interview. What a venous thromboembolism is – deep vein thrombosis (DVT) and pulmonary embolism (PE)

1. Briefly introduction from the patient on themselves and their cancer pathway so far
2. Knowledge about clots associated with the cancer.
 - a. If yes, Probe – e.g., causes of clot formation in your condition?
3. Knowledge on the possibility of getting a clot.
4. Knowledge on how to identify if you have a clot.
(Probe: Do you know what the signs and symptoms are of having a clot?)
5. Knowledge about surgery and relation to clots as well as knowledge about medication and having the medication to prevent clots?
(Probe – if yes, who, what, when, how, how long?)
6. Knowledge about chemotherapy and relation to clots? If yes, tell me if told about clots – who, what, when
7. Discussing anti-clotting treatment at any other time apart from surgery? (probe: injections or tablets)

If no. go to Q10.

If yes, the experience of receiving the blood thinners what, when, how long

8. If not mentioned above, knowledge patient has about the benefits and challenges or risks of anti-clotting treatment?

(Probe – heard about bleeding risk?)

9. This research is hoping to improve how the risk of clots is communicated to cancer patients. Going back to the information you received from XYZ about clots, tell me a little bit about your experience of receiving this information.

(Probe: How did it make you feel? Is there anything that could be improved/changed to make the experience better?)

10. Discussion on the best way to inform patients about their risk of developing clots? Why?

(Probe: What is the best method of presenting risk information to patients? Using numbers, percentages, words, figure, combinations or all (present the tools), individual risk or average, fear messages or positive messages?).

Healthcare professionals

1. Briefly introduction from participants on themselves and their speciality
2. What is the knowledge about venous thromboembolism (DVT and PE) given to the patients?
3. Type of information given to the cancer patients about venous thromboembolism risk in cancer which will be answered by the following questions:
 - a. Do you tell your cancer patients about the signs and symptoms of thromboembolism?
 - b. Do you tell your cancer patients about different preventative approaches that could affect getting thromboembolism?
 - c. Do you tell your cancer patients about the risk of chemotherapy for thromboembolism?
 - d. Do you tell the patients about the risk of surgery for the thromboembolism?
4. Do you inform your cancer patients about the benefits and challenges or risks of anti-clotting treatment?
(Probe: Do you inform your cancer patients about the bleeding risk?)
5. This research is hoping to improve how the risk of thromboembolism is communicated to cancer patients. Could you tell me a little bit regarding your experience of informing cancer patients about this information?
(Probe: How did it make them feel? Is there anything that could be improved/changed to make the experience better?)
6. Discussion on the best way to inform patients about their risk of developing thromboembolism, Why?
(Probe: What is the best method of presenting risk information to patients? Using numbers, percentages, words, figure, combinations or all (present the tools), individual risk or average, fear messages or positive message.