



Exploring clinician perspectives on patients with atrial fibrillation who are not prescribed anticoagulation therapy

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ABSTRACT

Objective: To explore themes underlying why anticoagulants are under-prescribed for stroke prevention in atrial fibrillation (AF) patients from the clinician's perspective and characteristics of those patients.

Methods: Clinicians at the University of Utah Health system were recruited for semi-structured 15-minute interviews. An interview guide focused on anticoagulant prescribing practices for patients with AF. Interviews were transcribed verbatim. Two reviewers independently coded passages corresponding with key themes.

Results: Eleven practitioners were interviewed from cardiology, internal medicine, and family practice. Five themes were found: the role of compliance in anticoagulation decision making, the role of pharmacists in supporting clinicians, the use of shared decision making and risk communication, risk of bleeding as the main barrier to taking anticoagulants, and the variety of reasons patients have for not starting or discontinuing anticoagulants.

Conclusion: Fear of bleeding was the foremost reason underlying anticoagulant underutilization in patients with AF followed by compliance, and patient worries. Communication between patients and clinicians as well as interdisciplinary teamwork are key to understanding and improving anticoagulant prescribing in AF.

Innovation: Our study was the first to assess the role pharmacists play in prescribing clinician's decisions surrounding anticoagulant use in AF. Pharmacists could play an important collaborative role in SDM.

1. Introduction

One in four Americans are diagnosed with atrial fibrillation (AF) in their lifetime, making it the most common heart arrhythmia type [1]. AF makes it 3 to 5 times more likely that a person will have a stroke due to irregular and rapid heart beating in the upper chambers of the heart causing blood to pool and allowing a clot to form [2]. These clots can then travel out of the heart into the brain where they cause an ischemic stroke by blocking blood supply to the brain. Extensive data from randomized controlled clinical trials support the efficacy of anticoagulants (which help prevent clot formation) in reducing stroke risk in patients with AF [3,4]. However, many eligible patients (as high as 60%) are not prescribed anticoagulant therapy despite current evidence-based guideline recommendations, and even those who are prescribed often do not continue taking it with discontinuation rates from 10-70% at one year [3,5-9].

A commonly used stroke risk stratification scheme for AF is the CHA₂DS₂-VASc score [10]. This score assesses the risk of stroke based on the following risk factors (one point per risk, exceptions noted): congestive heart failure; hypertension (high blood pressure); age 65-74 years; age over 75 years (two points); diabetes mellitus; prior stroke or transient ischemic

attack (two points); vascular disease (such as peripheral or coronary artery disease); and female sex [11]. Anticoagulant agents, including direct-acting oral anticoagulants (DOACs) or warfarin are recommended for all patients with CHA₂DS₂-VASc scores of 1 or more for men and 2 or more for women [10]. The CHA₂DS₂-VASc tool has been historically underutilized in clinical practice leading to missed opportunities in identifying patients who would benefit from anticoagulant therapy [1,6,12].

Even in patients with CHA₂DS₂-VASc scores indicating the need for stroke risk reduction, some clinicians fail to prescribe anticoagulants based on perceived risks such as bleeding, falling, or relative contraindications such as kidney or liver dysfunction or the presence of interacting medications [3]. Various bleeding risk stratification tools have been proposed to predict bleeding risk while on anticoagulants. However, these have limited utility in determining the risk/benefit of anticoagulation therapy and guidelines recommend against using these tools for routine risk stratification [10]. The clinical reasoning behind the decision to forgo anticoagulant therapy often goes undocumented in the medical chart [3]. Inadequate stroke prevention remains prevalent as one study reported 84% of patients who had an acute ischemic stroke and known AF were not receiving anticoagulation therapy at the time of the stroke despite the presence of stroke

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risk factors [3]. Thus, there is a critical gap in understanding the reasons underlying why clinicians do not prescribe anticoagulants in patients with AF.

The objective of this qualitative study was to explore themes underlying why anticoagulants are under-prescribed from the clinician's perspective and describe general characteristics of patients with AF in whom clinicians do not feel comfortable prescribing anticoagulant therapy.

2. Methods

This qualitative study included interviews with a sample of clinicians practicing within the University of Utah Health system (UHealth). UHealth encompasses four hospitals and 12 health clinics in Utah. To obtain a range of clinical perspectives, the inclusion criteria consisted of healthcare clinicians who regularly see patients with AF and have prescribing authority. Participants were chosen from different disciplines, including cardiology, internal medicine, and family practice, and included physicians, physician assistants, and nurse practitioners. Clinicians were invited to participate in interviews and completed the informed consent process through a standardized email.

This study was approved by the University of Utah Institutional Review Board (IRB). Interviews occurred between July and November 2019. A semi-structured interview template (see Appendix) was used to guide the interview and provide consistency. An expert in qualitative research (SS) conducted interviews either in person or by telephone. Interviews lasted, on average, 15 minutes.

Clinician demographic and practice-related variables including years in practice, medical specialty, and experience with managing AF, strokes, and bleeding in daily practice, were collected. Audio recordings from each interview were transcribed verbatim using Transcribe, a transcription software (Wreally LLC, Los Angeles, CA). Thematic analysis was used to determine common themes by utilizing an inductive approach where transcribed text was coded and then combined into themes based on similarities [13]. Two reviewers read the transcripts line-by-line and labeled passages of text to correspond with key concepts. Coding took place independently, but regular meetings occurred to ensure agreement and allow for reconciliation of discrepancies. A major theme for why anticoagulants are not prescribed was established when key concepts were repeated throughout interviews. The number of interviews was determined by thematic saturation, which occurred when major themes became established and no new themes emerged with further interviews [14,15].

3. Results

A total of 11 interviews were conducted before thematic saturation was achieved. Baseline clinician demographic and practiced-related information is summarized in Table 1.

Table 1
Demographic and Clinical Practice Characteristics of Clinicians.

Characteristics	Clinicians (N = 11)
Sex, n (%)	
Female	6 (54.5)
Training, n (%)	
Physician	8 (72.7)
Physician assistant	1 (9.1)
Advanced practice registered nurse	1 (9.1)
Nurse practitioner	1 (9.1)
Specialty, n (%)	
Cardiology	7 (63.6)
Family medicine	2 (18.2)
Internal medicine	2 (18.2)
Practice site, n (%)	
Inpatient	1 (9.0)
Outpatient	5 (45.5)
Both inpatient and outpatient	5 (45.5)
Length of practice (years)	
Mean (standard deviation)	5.96 (± 6.18)
Number of atrial fibrillation patients seen per week	
Mean (standard deviation)	8.72 (± 5.10)

Most participants were medical doctors (72.7%) with additional input from a physician assistant, advanced practice registered nurse, and nurse practitioner. The different specialties represented were cardiology (63.6%), family medicine (FM) (18.2%), and internal medicine (IM) (18.2%). Common themes identified from the interviews included the role of compliance in decision making, how pharmacists serve an important supporting role, shared decision making and risk communication, bleeding-related barriers to anticoagulation, and the variety of reasons patients have for not starting or discontinuing anticoagulation. Supporting quotes (Q) are listed in the accompanying tables.

Theme 1: Compliance plays a role in decision making for oral anticoagulants (OAC). Adherence to medications was reported in playing a role in whether clinicians prescribe OAC and which OAC is optimal for a given patient. Some clinicians specifically mentioned that they did not initiate OAC or discontinued OAC in patients who had a history of or were currently noncompliant to medications (Q1–3, Table 2). Compliance related to DOACs was highlighted in a variety of ways – compliance was reported being better with DOACs (Q4), while others were concerned about twice daily medications and cost impacting compliance. Other DOAC compliance concerns included worry about variable compliance with DOACs leading to worse outcomes (Q1) and the lack of monitoring and interaction in DOAC patients with the medical system. Whereas with warfarin, clinicians can monitor what their patients are doing (Q5).

Theme 2: Pharmacists and anticoagulation clinics are a major support to clinicians. Prescribing clinicians reported they rely on pharmacists or specialized anticoagulation clinics to help manage patients on anticoagulants and for institutional prescribing guidelines (Q6–9, Table 3). Pharmacists or anticoagulation clinics were referenced specifically in regards to protocols, being up to date on evidence, managing anticoagulants, and helping with cost. These resources helped improve clinicians' confidence in prescribing, especially with warfarin (Q7–8). Other roles of pharmacists were managing anticoagulants through the pharmacist-run thrombosis clinic and acting as a key resource when choosing an anticoagulant (Q9).

Theme 3: Starting OAC is a shared decision and clinicians feel many patients want to participate in shared decision making. Clinicians reported having conversations about the tradeoffs between benefits and risks with their patients, often following similarly structured counseling points (Q10–11, Table 4). The CHA₂DS₂-VASc score is used as a tool to discuss personalized stroke risk with patients (Q10). Fewer clinicians used HAS-BLED to stratify bleed risk, but most did discuss patient specific bleeding factors when applicable (Q12). Clinicians think that starting OAC is a shared decision and will do some degree of shared decision making with their patients before prescribing (Q13–16). However, some patients were associated with being less likely to participate in shared decision making such as those who are older or have lower education or health literacy.

Theme 4: The main barrier to taking OAC was bleed related. The main reason clinicians said they did not start OACs was related to patient's bleeding

Table 2

Theme 1: Compliance plays a role in decision making for anticoagulation.

Q1: Cardio 6, "I have personally decided not to start somebody with compliance [issues], just because I know there's data of the DOACs being a little bit worse if you are on and off the medication."
Q2: Cardio 6, "So, we decided to not do anticoagulation just because of compliance. So, very rare but it's something that does go into decision-making if it's a known issue."
Q3: Cardio 4, "Variable compliance. I don't like to say noncompliance - sounds like you're blaming the patient, never blame people for their misfortunes."
Q4: Cardio 4, "But patient compliance is definitely better, I think, with the DOACs if that makes them more effective."
Q5: Cardio 4, "Here's the irony of all ironies: the need for monitoring is actually reassuring because you know they're taking it. With a DOAC, you actually have no idea if they're taking it or not. I can't even measure compliance, other than count the pills. I've had patients go, 'I kind of like to know how thin my blood is', so they want the monitoring. From a clinician, it's actually great for me because I know they're getting monitored and I know they're compliant because I see their INR coming up. But the patient I put on apixaban once a year, I see them once or twice a year, I have no idea what's going on."

Table 3

Theme 2: Pharmacists and anticoagulation clinics are a major support to clinicians.

- Q6: Cardio 7, "Sadly, I don't know [about anticoagulation protocols]. Our thrombosis clinic has policies and procedures in place, and I refer to them for management of warfarin and INR, and occasionally, the DOACs. That's all I'm familiar with."
- Q7: Cardio 1, "I think the role of the pharmacist is kind of underestimated. My prescribing is really done by pharmacists, and they tell me what I need to do."
- Q8: FM 1, "Where I used to work in cardiology, we would prescribe the warfarin ourselves, but we had a team of nurses with protocols who also could manage the immediate, 'this INR came back a little funny, here's your next step to reduce your dose by this much', so there was a process in place. If I didn't have that process and was on my own, I don't think I would feel confident with managing warfarin. Even though that's an older and simpler drug, it's just more labor-intensive to manage. It's just too easy here, like all I do here is do a consult with thrombosis so I don't have to do all that."
- Q9: Cardio 2, "I don't know if it's a protocol - but [pharmacists] always look into the cost of the newer drugs for the patients as well, and that helps us decide what to do."

risk, and many expressed the belief that patients did not want to take anticoagulants because of bleeding concerns (Q17–20, Table 5). They were especially concerned about the bleeding risks of patients with a history of fall risk, bleeding, seizures, thrombocytopenia, and cancer (Q17–18). Clinicians felt that history of bleeding or fear of bleeding were patients' main reasons for not wanting to take OAC (Q19). While clinicians mentioned that their main concern for patients taking OAC was bleeding and associated comorbidities, many did mention the low rate that such events actually occur. One clinician said major bleeding affected decision making for all of their patients, whereas others said it only affected how they treated that specific patient (Q21–22).

Theme 5: Patients have a variety of reasons for not starting or discontinuing anticoagulants. While bleeding was the major concern clinicians mentioned that patients had for not taking anticoagulants, it was not the only reason for not taking OAC. For warfarin specifically, patients mentioned its reputation as a rat poison, and the monitoring burden for refusing the medication (Q23–25, Table 6). Additionally, there are patients who refuse to take any medications so their decision was not necessarily specific to anticoagulants

Table 4

Theme 3: Shared decision making and risk communication

- Q10: Cardio 6, "Most of the time, it's the discussion based on the CHA₂DS₂-VASc and sometimes, there's a score, like the SPARC tool that combines both the HAS-BLED and CHA₂DS₂-VASc that I'll show people, just like what the bleed risk is with or without [OAC], what the stroke risk is with or without is, and kind of give them the options and present them the different medications we have now, like Coumadin vs. all the DOACs"
- Q11: Cardio 2, "I'm more on the side of explaining that uncertainty to patients in trying to help them decide. But the more and more I do this, the more and more I think the patients just want you to tell them what to do."
- Q12: Cardio 1, "It varies. So, some patients do want a role and some do defer to me. It varies, I'd say it's pretty evenly switched. And I think it is a shared decision, which is why I use the percentages and stuff beforehand. But again, I think it's mixed."
- Q13: FM 2, "I think it's more like the social determinants of health, like all that combination. Because it does have to do some with ethnicity, some with the age group, and then their level of education or schooling. It's definitely a combination. And then also, the length of the relationship with the patient. Cause sometimes you get these patients you've met for several years and they trust you blindly and so those are the ones who are like, I really don't know what to do, tell me just what to do. But newer patients are more likely to be like, tell me a little bit more about it."
- Q14: Cardio 3, "Maybe older patients that don't feel that they understand their health care well enough to make a decision themselves. They have a lot of health issues already and may be overwhelming to them, and they just... [do] whatever you recommend."
- Q15: FM 1, "I think most want a role in decision-making. I think there's been a long time... since I've had that patient that's truly like, I don't know, whatever you say. I think people put a lot of stock in our authorities and opinions, but most people want to be a part of that conversation."
- Q16: IM 1, "I think that most of the younger patients, I feel like they do [participate in shared decision making]. And maybe people that have a higher education level are a little more interested in participating. And then people that are maybe a little older are more likely to ask you to just recommend things to them. So, it sort of is demographic-specific."

Table 5

Theme 4: The main barrier to taking anticoagulants was bleed related.

- Q17: Cardio 7, "Usually, they're [patients who you wouldn't prescribe anticoagulants], the ones over 90 or even 95 are very high fall risks, and comfort care only. In other populations that are younger, I'm thinking if their platelet count is less than 50- or 30,000; we'll consult with oncology to discuss anticoagulation."
- Q18: Cardio 5, "The group that I'm hesitant with prescribing are individuals that have had uncontrolled seizure disorders, specifically tonic-clonic generalized variety and/or individuals that have lost consciousness and hit their head and lost consciousness."
- Q19: Cardio 1, "We may be concerned about the risk of bleeding, and they or their family may decide that falls are hard, and they're concerned about intracranial bleeds, or they may have previously had bleeding."
- Q20: Cardio 5, "I'm most concerned about either intracranial hemorrhages or gastrointestinal or genitourinary bleeds. Really, the first one is what concerns me and concerns most patients the most, which is having some catastrophic brain event."
- Q21: Cardio 4, "Absolutely, it always makes you think twice by recommending that to a patient when you've seen somebody have a really bad outcome. But again, it's a bit anecdotal medicine, case after case. Just because it happens to you, really has no relevance if it happens to patient Y, who doesn't look anything like you, who doesn't have the problems you do, who is half your age, whatever. But it does influence your decision-making because we're just being human."
- Q22: Cardio 1, "I think it can affect your prescribing habits in that individual because if they've had large life-threatening GI bleed, then you're hesitant to prescribe them anticoagulants again, even if their risk of having another stroke is higher. So, it can have that sort of prescribing effect on an individual. On a broader scale, I don't think so."

(Q25). Cost and lifetime burden of anticoagulation were also mentioned as reasons for not wanting to take anticoagulants. (Q23,24,26).

4. Discussion and conclusion

4.1. Discussion

This qualitative study explores themes regarding factors that influenced clinicians' anticoagulant prescribing decisions for stroke prevention in certain AF patients. In previous studies, bleeding risk was the most common reason clinicians did not prescribe anticoagulants, followed by history of adverse events and older age [3,6]. Other important patient factors considered were inconvenience of therapeutic monitoring, cognitive dysfunction, impaired renal or hepatic function and patient refusal [6,12]. This study reports similar results, but provides more insight into the clinician's prescribing process, including shared decision making with the patient and risk vs. benefits analysis.

Based on the common themes emerging from the clinician interviews, there are certain areas that can be targeted to increase guideline-

Table 6

Theme 5: Patients have a variety of reasons for not starting or discontinuing anticoagulants.

- Q23: Cardio 4, "I had an uncle who bled to death on it. The usual anecdotes that people have: 'it's rat poison', I heard these new drugs are so expensive, I'm not paying for that'. On and on and on. There are multiple, multiple reasons. They're worried about drug interactions, they're worried about bleeding, downsides, etc."
- Q24: Cardio 5, "If it's warfarin, they'll often decline stating that it's analogous to rat poison. If it's a direct oral anticoagulant, it's not often declined. But when it is, typically it's related to either prior bleeding or the cost."
- Q25: Cardio 6, "For some, it's just if they're not wanting to take medications. Probably the most common that they just don't want to take something, especially if it's apixaban that's twice a day. Others are just afraid of them, and the bleed risk that's in there, even if you talk to them about the stroke risk. And some people, if they only meet criteria for Coumadin, don't want to do the blood tests that occur regularly. Not as many now, once you have more of a discussion, but it does happen."
- Q26: Cardio 3, "If they feel they're very healthy and that they're not ready to start anticoagulation, sometimes they'll eventually start it a year or couple years later. Another scenario is if they have bleeding issues that bother them, like nosebleeds, which wouldn't be a strict contraindication for them. And then a third scenario is if they've had a bad experience, either a family member or themselves being on anticoagulation, they may refuse it."

recommended anticoagulant prescribing. Specifically, areas of focus are (a) addressing patient-specific fears and misconceptions; (b) encouraging shared decision making; and (c) providing education and promoting inter-professional collaboration as resources for clinicians.

A common theme for not prescribing anticoagulants was patient refusal or perceived refusal, namely due to a fear of bleeding, increased medication burden, and a negative reputation associated with warfarin. This is an opportunity to increase patient education and utilize motivational interviewing techniques, such as addressing the common myth that prescription warfarin is rat poison. Patients may also require more counseling focused on the perceived risk of bleeding compared to the actual risk. A clinician discussed how bleeding is usually rare and treatable, while stroke is potentially devastating, so she tends to err on the side of using anticoagulants.

While all clinicians discussed the risks and benefits of taking anticoagulation for stroke reduction, this is only one aspect of shared decision making [16]. Most clinicians affirmed that they engaged in shared decision making with most of their patients; however, it is unclear whether shared decision making actually occurs as studies have shown that patient involvement in decision making is not consistently taking place [17,18]. The comments from our study demonstrated that many clinicians may be acting more paternalistically when they explain everything, as opposed to arriving at a decision together based on patient values and clinician recommendations. Our findings are in line with previous studies showing that clinicians perceive certain types of patients as less likely to engage in shared decision making (i.e. age and education level); however, other studies have shown that these patient factors are not accurate predictors of engagement in shared decision making [19-22]. Future studies with validated outcome measures and recordings of clinician-patient interactions could help clarify how prevalent actual shared decision making is when starting anticoagulants.

As the majority of clinicians reported using the CHA₂DS₂-VASc score to stratify stroke risk with virtually every AF patient, it is apparent that the score is utilized appropriately as recommended by evidence-based guidelines. The clinician who rarely used CHA₂DS₂-VASc worked in family medicine and usually managed patients already started on anticoagulants. Cardiologists used the HAS-BLED tool to stratify bleed risk, and family medicine sometimes use the ASCVD stroke risk calculator, but both are less common than the CHA₂DS₂-VASc score. This distinction may be used as context for future clinician education – cardiologists may have a primary goal of assessing stroke vs. bleeding, while primary care physicians (PCPs) may have a target of decreasing atherosclerotic cardiovascular events in general.

Although clinicians are most concerned with intracranial hemorrhages, the majority shared a similar perspective that critical bleeds are very infrequent. A few clinicians noted that the fragmented healthcare system may contribute to a perceived lower risk of bleeding or stroke. Since treating an emergent bleed or stroke is out of the scope of practice for general cardiologists or PCPs, they generally do not encounter these traumatic events. This perspective suggests that an interprofessional approach to patient care and closed healthcare delivery systems may improve prescribing practices and coordination of care.

As a majority of clinicians were unaware of institutional prescribing guidelines, all clinicians would benefit from being updated on local recommendations and resources by clinical anticoagulation services such as the UHealth Thrombosis Clinic. Multiple clinicians mentioned utilizing pharmacists to stay up to date on evidence-based guidelines, choose a specific anticoagulant, manage INR results, and help with cost-conscious prescribing. Based on these answers, pharmacists have an opportunity to promote their clinical services for clinicians, as well as provide more system-wide education on current literature and cost. Promoting overall interprofessional collaboration can result in comprehensive, evidence-based, and patient-centered anticoagulation management.

By interviewing clinicians directly, this qualitative study evaluated clinicians' perspectives on clinical decision-making and which patient-

specific factors are considered. It highlighted gaps in the prescribing process where targeted interventions can be made. The results can be used to generate future quantitative studies on the subject. A limitation of the study is the small number of interviews conducted within one healthcare system; the answers and themes may change across other clinicians and healthcare systems, specifically if the institution does not have a specialty anticoagulation clinic. Additionally, it cannot be concluded that clinicians were accurate reporters of their behaviors. As is true for all qualitative studies, our results generated potential hypotheses related to anticoagulant prescribing for patients with AF that need to be tested in quantitative studies.

4.2. Innovation

Of the existing qualitative studies that have examined OAC use in AF, ours is the only one in the United States to explore the role of pharmacists on clinician decision making [23]. While a study in Australia assessed how pharmacists make their own decisions about OAC, how these clinicians work together to make decisions was not examined [24]. We found that clinicians rely on clinical pharmacists to either aid in their decision making, or to make the decision with the patient instead of the prescribing clinician. The finding is innovative in that it shows pharmacists may be an important untapped resource for having shared decision making conversations with patients. Integrating pharmacists into teams and focusing on delegating shared decision making from prescribing clinicians to pharmacists could have significant practice and clinical implications.

4.3. Conclusion

The themes identified in our study can be utilized to implement targeted interventions and clinician education aimed at increasing guideline-directed prescribing of anticoagulation in AF.

Overall, the main finding was that communication between patients, clinicians, and interdisciplinary teamwork are key to improving uptake of this essential therapy. Specific communication areas included addressing common patient fears, and participating in appropriate shared decision making with patients. Pharmacists are an essential part of interdisciplinary teams and serve as important resources for primary clinicians when fully optimized as part of the team.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix 1. Standardized Interview Template

Introduction

1. What is your practice specialty? Interventional or generalist? Inpatient or outpatient?
 - a. How long have you been practicing?
 - b. Do you treat patients with active or a history of bleeding or stroke?
 - c. Do you have any research experience in this field?
2. How many patients with AF do you usually see on a weekly basis?
 - a. Do you perform procedures for AF (e.g. Watchman, ablation)?

3. How confident do you feel about prescribing and managing anticoagulants?
4. Do you have any personal/family experiences with AF or stroke?

Clinical approach

5. How often do you use CHA₂DS₂VASc to stratify stroke risk in patients with non-valvular AF? If you don't generally use CHA₂DS₂VASc, what is your approach to determining stroke risk?
6. What protocols/policies are in place at your practice setting on prescribing anticoagulants in AF patients? How often do you deviate from the protocol/policy? What are some common reasons for not following the protocol/policy?
7. Tell me about the typical conversations you have with patients with AF before starting anticoagulants?

- a. What proportion of patients refuses to take anticoagulants? What are common reasons why patients refuse to take anticoagulants?
- b. What role do patients want in this decision-making? Or do you just make the clinical recommendation?

Reasons for not prescribing anticoagulants

8. What are your thoughts on the effectiveness of anticoagulants (DOACs, warfarin) for preventing stroke in patients with AF?
9. What adverse events are you most concerned about? How frequent are they? How does that affect your prescribing habits?
10. What type of patient is most commonly *not* started in anticoagulation despite potential eligibility?
 - a. Why don't you anticoagulate them?
 - b. What are some absolute contraindications for anticoagulants?
11. What are some common reasons why you discontinue anticoagulants?
12. Is there anything else you would like me to know about prescribing anticoagulants to prevent stroke in patients with AF?

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