Educational needs among physicians treating patients with atrial fibrillation: lessons for Poland from the European Society of Cardiology international educational needs assessment study

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Educational needs among physicians treating patients with atrial fibrillation: lessons for Poland from the European Society of Cardiology international educational needs assessment study

Short title: ESC international educational needs assessment Poland

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Keywords: atrial fibrillation; education; guidelines; physicians’ knowledge; stroke
Abstract

Introduction: The European Society of Cardiology international educational needs assessment study has identified educational and organizational barriers preventing the implementation of optimal atrial fibrillation (AF) therapy across European countries.

Objectives: Our aim was to investigate educational and organizational barriers in the implementation of guideline-recommended AF care that are specific to Polish physicians and health care system.

Patients and methods: An internet-based survey was conducted to assess education, skills and confidence in managing patients with AF among European cardiologists, neurologists and family practitioners (FP) from six countries.

Results: Out of 571 respondents, the Polish sample comprised 90 (16%) physicians: 44 (15%) cardiologists, 21 (16%) neurologists and 25 (18%) FP. Polish physicians generally reported similar skills and confidence to their foreign colleagues, but there was high uncertainty concerning skills and confidence in the identification and pathophysiological classification of AF. Also, FP notified low confidence in applying CHA2DS2-VASc and HAS-BLED scores to clinical practice. The need for access to long-term heart rhythm monitoring including implantable loop recorders was highlighted. There was general dissatisfaction with the cooperation between Polish physicians, which was significantly higher than in the other countries.

Conclusions: Number of significant educational gaps between Poland and the rest of Europe is low. Nonetheless, educational programs tailored for different specialists to improve competence are warranted. Those programs should be individually tailored for each group of specialists. There is a clear need for improvement of communication among different specialists treating AF patients in Poland.
Introduction

Current European and Polish guidelines and position papers describe in detail the optimal management of patients with atrial fibrillation (AF), both in terms of diagnosis and subsequent treatment [1-3]. Proper guideline-directed treatment imposes a favorable effect on the outcomes of AF treatment although physicians’ and patients’ views on anticoagulation and risk of stroke may vary [4, 5]. Therefore, numerous means of implementation, including congresses, webinars and mobile applications are employed to reach all relevant groups of health care professionals. To further tailor the educational efforts in the field of AF, European Society of Cardiology (ESC) and European Heart Rhythm Association (EHRA) developed and conducted an international needs assessment study [6]. This was an internet-based study aimed at specialists in cardiology, neurology and general practice/family practice (FP) who were involved in providing care for AF patients. The study was conducted in six European countries (France, Germany, Italy, Poland, Spain and the UK). It comprised questions regarding the diagnosis of AF, rate and rhythm control, anticoagulation and the organization of health care system. All countries surveyed revealed major educational gaps that need to be addressed by targeted educational initiatives in the future [6].

The primary analysis of the study data indicated that Polish cardiologists, compared to cardiologists from other countries, reported a higher need for improvement in the use of pathophysiological classification of AF and lower access to implantable loop recorders (ILR) [6]. Polish FPs were least inclined to use a rate control strategy. Cardiologist and FPs were especially dissatisfied with the collaboration between them. Since this was a general analysis across all countries involved, a more detailed focus on Polish physicians was lacking.

Our aim was to perform an analysis of the data collected by the ESC to specifically identify educational needs and organizational barriers preventing the implementation of guideline-recommended AF diagnosis and treatment for Polish cardiologists, neurologists and family
physicians. Special emphasis was placed on identifying potential gaps between Polish and foreign physicians’ self-perceived level of expertise.

Patients and methods

A detailed methodology of the survey was described previously [4]. The study complied with the Declaration of Helsinki and the protocol was approved by an independent international ethical review board (IRBServices, Aurora, Canada).

Using a mixed-methods approach comprising different methodological designs (qualitative and quantitative), data collection methods (literature review, interviews, and surveys) and data sources (cardiologists, FPs, and neurologists) the AXDEV Group Inc. (Brossard, Quebec, Canada) conducted the study while ESC and EHRA were responsible for clinical cases, the interpretation of the data generated, and the development of the manuscript of the published study [6]. Our group analyzed and interpreted data from Polish participants and compared them with data collected in other countries.

The study targeted active cardiologists, neurologists and FPs who had dedicated ≥50% of their time to regular clinical work for more than 5 years. To be included in the analysis their AF caseload was expected to be ≥5% of all tended patients. Potential participants were invited by email using membership lists of ESC (cardiologists) or via contacts obtained from an international healthcare provider database (neurologists, FP).

Areas of investigation across the AF patient care pathway were developed on the basis of literature search and expert opinion. The survey was tested during the first phase of the study using 30 semi-structured telephone interviews. In the quantitative second phase of the study, participants were asked to complete a 15-20 min survey comprising questions (N=11) and cases (N=2) exploring their knowledge, skills, and confidence in diagnosing and treatment of
AF. A Complete description of the questions and clinical cases was discussed earlier [6]. Physicians were asked to respond to questions by indicating (a) their level of knowledge regarding aspects of clinical practice (not acceptable, could be improved, acceptable); (b) their level of skills to apply that knowledge (needs significant improvement, needs minor improvement, optimal), e.g. actual calculation of the CHA2DS2-VASc score when their knowledge indicated that they could use the score in decision-making concerning a treatment; and (c) their current level of confidence (1 = low confidence; 5 = optimal) in applying their knowledge and skills to clinical practice.

Knowledge, skills and confidence self-reported data were dichotomised: (a) knowledge: not acceptable or could be improved grouped as needing improvement; (b) skills: needs significant improvement or needs minor improvement grouped as needing improvement; and (c) confidence: 1–3 on the five-point scale grouped as low to moderate confidence. This classification was adopted arbitrarily by the AXDEV Group Inc. to simplify analyses and the authors of Polish substudy followed this division due to the lack of access to the actual raw data of the study.

The Areas in which more than 70% of physicians reported the need of skills improvement or low-to-moderate confidence were considered as relevant and requiring most targeted educational effort.

Statistical analysis

Using the data provided by the ESC we calculated the proportions of physicians reporting low-to-moderate confidence or need for skills improvement in Poland and in other countries as a whole. Comparisons between Polish physicians and non-Polish physicians were made using chi square test or two-tailed Fisher’s exact test if the expected value in any of cells of a 2 x2 contingency table was ≤5.
P values of <0.05 were considered statistically significant. Calculations were carried out using Dell STATISTICA 13.0 software package (Dell, Texas, USA).

Results

General results

There were 8014 physicians invited to participate in the study and 561 (7%) of them accepted the invitation. Respondents originated from six European countries: France, Germany, Italy, Poland, Spain and the United Kingdom. The majority of the physicians surveyed had between 11 and 20 years of experience, reported ≥ 11% AF caseload and about half of them had community-based practice setting. Polish sample comprised 90 (16%) of enrolled physicians: 44 (15%) cardiologists, 21 (16%) neurologists and 25 (18%) FP.

The arbitrary 70% threshold of expected educational support was reached in the following areas: AF classification (all three groups), AF identification (neurologists and FPs), access to IRL and utilization (all three groups), challenges on new therapies and trials (only neurologists), handling gastric issues associated with non-vitamin K oral anticoagulants (NOAC, only neurologists), using CHA₂DS₂-VASc and HAS-BLED (only FPs), and collaboration with other specialists (all three groups) (Table 1 and 2).

Table 1. Proportions of Polish and foreign clinicians reporting the need for skills improvement regarding diagnosing and treatment of AF.

Significantly larger percentage of Polish physicians reported sub-optimal collaboration with other specialists. General dissatisfaction in this field was high among European doctors
irrespectively of their specialization, nevertheless it was significantly higher in the case of the Polish sample than in Western Europe (Table 1 and 2).

Table 2. Proportions of Polish and foreign clinicians reporting low-to-moderate confidence in handling issues related to atrial fibrillation.

In comparison to other countries, Polish cardiologists more frequently reported a higher need for improvement of skills (89% vs 58%) and insufficient confidence (59% vs 43%) in pathophysiological classification of AF (Table 1 and 2). They also more often declared low-to-moderate confidence in using ILR (73% vs 42%). There was also a tendency for higher need for improvement of skills in identifying AF (61% vs 46%), lower need for skills improvement in using HAS-BLED (20% vs 34%), as well as insufficient confidence in challenges on new therapies and trials (59% vs 45%).

Polish neurologists did not differ from their foreign colleagues in declared needs for skills improvement (Table 1 and 2). However, they more often reported low-to-moderate confidence (86% vs 60%) in one essential area - diagnosing AF (Table 2).

There were no significant differences between Polish and foreign FPs apart from a lower need for skills improvement in handling patients with gastric issues (24% vs. 50%, p=0.02). However, Polish FPs tended to express more frequently low-to-moderate confidence in identifying AF (76% vs 57%), handling gastric issues (68% vs 49%) and helping patients to overcome side effects of NOACs (56% vs 36%) (Table 2).
Discussion

Our sub-analysis of the ESC international educational needs assessment study confirms that there is a clear need for additional education expressed by both Polish and foreign physicians, especially neurologists and FPs. There are also several important educational gaps in terms of managing patients with suspected or diagnosed AF that should be addressed in order to improve the level of self-perceived degree of expertise across Europe.

More than 60% of Polish cardiologists declared the need for improvement of skills in identifying the underlying pathophysiology of AF. It can be anticipated that a pathophysiology-guided management of AF (i.e. based on the etiology of the disease) may be superior to the current mainly symptom-based classification (i.e. the frequency and duration of episodes). There are also clear difficulties to access long-term Holter monitoring. This was further reinforced by the already reported lack of access to ILR in Poland as those devices are not directly reimbursed by the Polish National Health Fund (NHF) [6]. Both these factors explain the very high need for improvement of skills in classifying this most frequent arrhythmia. The need in question was also strongly expressed by neurologists and FPs, which may reflect the uncertainty about contemporary definitions and the state of knowledge of AF. A recently published expert consensus on utilization of ILR in patients after ischemic embolic stroke of undetermined source underlines the need of a long-term heart rhythm monitoring especially in this high-risk population in Poland [7].

It may seem questionable to expect non-cardiologists like FPs to be able to classify AF according to the underlying pathophysiology on a daily basis or be up-to-date with the latest clinical trials in AF. On the other hand, in Poland they are patients’ first-line contact with health care. Therefore, one could argue they should be able to have no problems with diagnosing this highly prevalent condition [1]. One should also note that Polish FP have a wide variety of screening opportunities at their disposal (i.e. simple pulse-check, through
blood pressure monitors, single-lead and regular 12-lead ECG) but they are not able to schedule Holter-type monitoring. Evidence unambiguously supports opportunistic screening for AF, especially in high-risk populations and is reflected by ESC guidelines [1, 8-10].

Polish FPs and cardiologists reported good skills and confidence regarding the utilization of CHA2DS2-VASc score, while neurologists reported a need for improvement in both areas. CHA2DS2-VASc score, which is an established tool for risk stratification and clinical decision making, was perceived by some of the respondents as a clinical research or academic tool with limited applicability to everyday practice [6]. Nevertheless, CHA2DS2-VASc is now used world-wide for selecting AF patients for anticoagulation therapy. This score is by no means perfect and does not perform uniformly well in all clinically important situations.

While relatively content with their level of knowledge, over 70% of Polish FPs admitted low-to-moderate confidence in clinical application of CHA2DS2-VASc score. This should definitely be targeted in future educational projects concerning this group of physicians. In-depth knowledge of CHA2DS2-VASc may seem a little less relevant to neurologists who deal mainly with secondary stroke prevention. As all patients with a history of previous ischemic stroke by definition score at least 2 points, they are strong candidates for oral anticoagulation. Nonetheless, the available data support high accuracy of CHA2DS2-VASc for the prediction of stroke and there are also cases of AF in patients after intracranial hemorrhage [11, 12]. The ABC (age, biomarkers, clinical history) stroke risk score is a more recently developed tool for risk stratification of thrombotic complications in AF, but so far has not gained recognition equal to the CHA2DS2-VASc score [13, 14].

As far as HAS-BLED score was considered, Polish physicians responded similarly to the rest of the group. However, the need for improvement of both skills and confidence in this area seems to be especially high among FPs. Generally, respondents regarded HAS-BLED score as imprecise and impractical since there were no specific clinical decisions indicated in the
guidelines based on this score [1, 6]. The HAS-BLED score is a systematic tool that reminds physicians of possible correctable bleeding risk factors which were stressed in the 2016 ESC AF Guidelines [1]. There is scientific evidence of good correlation between the score and risk of major bleeding [12]. Influence of stroke and bleeding risk on the decision on instigation of anticoagulation was examined among Australian general practitioners [15]. Although the study is a little out of date (no NOACs, antiplatelets indicated in the AF setting), respondents tended to administer warfarin in high risk stroke patients but in case of bleeding the percentage of OAC prescription fell significantly. Also, the type of bleeding: nose bleed vs. gastrointestinal vs. intracranial hemorrhage clearly impacted this decision.

Regarding patients with renal or gastric issues who are treated with NOACs, Polish physicians generally reported skills and confidence consistent with their European counterparts. As expected, cardiologists appear to be the best educated, but even 30-40% of them would like to improve their skills in this matter. What was not expected was a relatively low level of knowledge of new AF therapies and trials, as reported by cardiologists. This was in line with the outcomes of the primary analysis where more than 60% of cardiologists reported skills inadequate to appropriately select candidates for AF ablation [6]. It should be bared in mind that proper rhythm-control strategy may be superior in selected population of AF patients [16]. As interventional procedures are the cornerstone of rhythm control strategy, this outcome is of particular importance to the future education interventions for general cardiologists.

A dire need to improve the cooperation between various physicians was identified, which may reflect a wider problem with communication among health care professionals in Poland. Both cardiologists and neurologists complained about the quality of referrals form FPs. The main issue cited here was incomplete or lacking information about the referred patient. On the other hand, FPs complained about the quality of return information being both incomplete or out-
of-date. This seems to be a universal problem in Europe and may deserve a wider recognition and systematic approach on the ESC or EHRA level, but in Poland this is particularly important [6].

Limitations

This was a subanalysis of a previously published study and all the limitations stated in the main publication are valid for this study [6]. The survey was based on voluntary participation and self-reporting. This could introduce selection and cultural bias. Together with a relatively low response rate those factors can limit the generalizability. Available data did not allow reliable comparisons between educational needs of academic and community-based physicians. This would be especially interesting concerning significant disparity in clinical profile and knowledge among AF patients derived from university and non-university hospitals in Poland [17, 18]. However, a country-specific analysis could overcome those limitations to some degree. Clinical experience shows that a fraction of patients with AF are diagnosed and treated ad hoc at emergency departments without direct involvement of any of the studied specialists and this study does not cover such situations. Finally, deficiencies of Polish health care system (ie. lack of public coverage of long-term heart rhythm monitoring) might have a significant impact on certain outcomes of Polish sample.

Conclusions

This substudy of the European Society of Cardiology international educational needs assessment has highlighted significant educational and organizational barriers in the implementation of guideline-recommended AF therapy in Poland. The number of significant educational gaps between Poland and the rest of Europe is small but there is still room for
improvement. It appears necessary to develop and carry out educational programs tailored for each group of specialists instead of one universal program. There also seems to be a great need to improve the level and culture of communication among specialists treating AF patients.

Author contribution

MMF: Concept/design, Data analysis/interpretation, Drafting article; MK: Statistics, Data analysis/interpretation, Critical revision of article; MS: Data analysis/interpretation, Critical revision of article; TT: Data analysis/interpretation, Critical revision of article; MA: Critical revision of article; AV: Critical revision of article; KHK: Critical revision of article; GH: Critical revision of article; ND: Critical revision of article; HH: Concept/design, Data analysis/interpretation, Critical revision of article.

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References


Table 1. Proportions of Polish and foreign clinicians reporting the need for skills improvement regarding diagnosing and treatment of AF. Areas in which educational needs are particularly high (>70% of responses indicating need for improvement) are marked in grey.

<table>
<thead>
<tr>
<th>Areas of investigation</th>
<th>CARDIOLOGISTS</th>
<th>NEUROLOGISTS</th>
<th>FAMILY PRACTITIONERS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Poland (n=44)</td>
<td>Control group (n=250)</td>
<td>P</td>
</tr>
<tr>
<td>Classifying AF</td>
<td>89%</td>
<td>58%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Identifying the underlying pathophysiology of AF</td>
<td>61%</td>
<td>46%</td>
<td>0.07</td>
</tr>
<tr>
<td>Using ILR</td>
<td>68%</td>
<td>55%</td>
<td>0.11</td>
</tr>
<tr>
<td>Challenges on new therapies and trials</td>
<td>66%</td>
<td>55%</td>
<td>0.17</td>
</tr>
<tr>
<td>Handling renal issues associated with NOAC</td>
<td>32%</td>
<td>38%</td>
<td>0.46</td>
</tr>
<tr>
<td>Handling gastric issues associated with NOAC</td>
<td>43%</td>
<td>48%</td>
<td>0.59</td>
</tr>
<tr>
<td>Using CHA2DS2-VASc</td>
<td>11%</td>
<td>16%</td>
<td>0.47</td>
</tr>
<tr>
<td>Using HAS-BLED</td>
<td>20%</td>
<td>34%</td>
<td>0.08</td>
</tr>
<tr>
<td>Educating patients</td>
<td>32%</td>
<td>32%</td>
<td>0.94</td>
</tr>
<tr>
<td>Helping to overcome side effects of NOAC</td>
<td>50%</td>
<td>51%</td>
<td>0.88</td>
</tr>
</tbody>
</table>

AF, atrial fibrillation; ILR, implantable loop recorder; NOAC, non-vitamin K oral anticoagulants
Table 2. Proportions of Polish and foreign clinicians reporting low-to-moderate confidence in handling issues related to AF. Areas in which educational needs are particularly high (>70% of responses indicating low-to-moderate confidence) are marked in grey.

<table>
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<tr>
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<th>NEUROLOGISTS</th>
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</tr>
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<td>P</td>
</tr>
<tr>
<td>Classifying AF</td>
<td>59%</td>
<td>43%</td>
<td>0.045</td>
</tr>
<tr>
<td>Identifying the underlying pathophysiology of AF</td>
<td>45%</td>
<td>36%</td>
<td>0.21</td>
</tr>
<tr>
<td>Using ILR</td>
<td>73%</td>
<td>42%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Challenges on new therapies and trials</td>
<td>59%</td>
<td>45%</td>
<td>0.08</td>
</tr>
<tr>
<td>Handling renal issues associated with NOAC</td>
<td>25%</td>
<td>24%</td>
<td>0.84</td>
</tr>
<tr>
<td>Handling gastric issues associated with NOAC</td>
<td>32%</td>
<td>36%</td>
<td>0.56</td>
</tr>
<tr>
<td>Using CHA(2)-DS(2)-VASc</td>
<td>23%</td>
<td>18%</td>
<td>0.50</td>
</tr>
<tr>
<td>Using HAS-BLED</td>
<td>23%</td>
<td>30%</td>
<td>0.30</td>
</tr>
<tr>
<td>Educating patients</td>
<td>32%</td>
<td>26%</td>
<td>0.46</td>
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<tr>
<td>Helping to overcome side effects of NOAC</td>
<td>23%</td>
<td>18%</td>
<td>0.50</td>
</tr>
<tr>
<td>Quality of collaboration between specialists</td>
<td>80%</td>
<td>63%</td>
<td>0.03</td>
</tr>
<tr>
<td>Quality of referrals from FPs/FPs to specialists</td>
<td>80%</td>
<td>63%</td>
<td>0.03</td>
</tr>
<tr>
<td>Quality of feedback information from specialists</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

AF, atrial fibrillation; ILR, implantable loop recorder; NOAC, non-vitamin K oral anticoagulants; FPs, general practitioners/family practitioners; NA, non-applicable