Knowledge and management of smoking-cessation strategies among cardiologists in France: A nationwide survey

État de connaissance et prise en charge du tabagisme par les cardiologues en France : enquête nationale

Victor Aboyans\textsuperscript{a,*,b}, Pauline Pinet\textsuperscript{a}, Philippe Lacroix\textsuperscript{a,b}, Marc Laskar\textsuperscript{a}

\textsuperscript{a} Department of Thoracic and Cardiovascular Surgery and Vascular Medicine, Dupuytren University Hospital, 2, avenue Martin-Luther-King, 87042 Limoges, France
\textsuperscript{b} EA3174-IFR 175, University of Limoges, Limoges, France

Received 22 October 2008; received in revised form 5 January 2009; accepted 6 January 2009
Available online 19 March 2009

Summary

Background. — While cardiologists are very active in the prevention of cardiovascular disease, their attitudes towards patients’ smoking habits are poorly studied.

Aims. — In a nationwide French survey, we assessed cardiologists’ levels of knowledge and management of smoking cessation.

Methods. — We sent out a questionnaire to a random sample of 1000 cardiologists.

Results. — A total of 371 cardiologists agreed to participate in the survey; 8.1% were current smokers and 32.4% were past smokers. Most classified smoking cessation as the top priority for patients with coronary artery disease (56.5%) and peripheral arterial disease (88.5%). Cardiologists routinely assessed active and passive smoking in 96.2% and 43% of their patients, respectively. Only 29.2% considered themselves well informed about smoking-cessation management. While 39.9% declared they knew about the minimal counselling 7.3% described it correctly. Only 17.5% used the Fagerström questionnaire. Smoking cessation was advised systematically by 85% but only 5.4% of cardiologists followed up their patients specifically on this issue. They referred smokers to either their general practitioner or to smoking-cessation centres and/or quitlines in 16.0% and 67.0% of cases, respectively; 31.8% never referred their patients to a smoking-cessation centre, and 25% declared being unaware of any such centre in their area. Cardiologists who smoked were less likely to ask about patients’ smoking status than...
non-smokers (90% vs 98.2%, \( p = 0.039 \)). Similarly, they were more passive in offering smoking-cessation counselling (23% vs 7%, \( p = 0.011 \)), and referred less frequently their patients to a smoking-cessation centre (37% vs 64%, \( p = 0.028 \)).

**Conclusion.** — French cardiologists are rarely involved in the management of smoking cessation. Their own smoking status influences their attitudes towards the management of smoking cessation.

© 2009 Published by Elsevier Masson SAS.

---

**Résumé**

**Justification.** — Les cardiologues sont très actifs pour prendre en charge les facteurs de risque cardiovasculaires, mais leurs attitudes face au tabagisme sont mal connues.

**Objectifs.** — Nous avons voulu connaître les connaissances et attitudes des cardiologues français face au tabagisme.

**Méthodes.** — Nous avons envoyé un questionnaire à un échantillon aléatoire de 1000 cardiologues.

**Résultats.** — Parmi eux, 371 ont répondu (8% fumeurs, 32% ex-fumeurs). Les cardiologues classent en majorité l’arrêt de tabac comme la première priorité chez les coronariens (56,5%) et les artériopathes (88,5%). Le tabagisme actif et passif sont systématiquement recherchés dans 96 % et 43 % des cas. Seuls 29 % se considèrent bien informés pour cette prise en charge. Si 39 % déclarent connaître le conseil minimal, seuls 7 % le décrivent correctement. Seuls 18 % utilisent le questionnaire de Fagerström. S’ils conseillent systématiquement l’arrêt de tabac dans 85 % des cas, seuls 5 % suivent un patient spécifiquement à cet effet. Ils orientent leurs patients vers le médecin traitant dans 16 % des cas et vers un tabacologue ou ligne téléphonique d’assistance dans 67 % des cas, mais 32 % n’adressent jamais un patient vers un tabacologue et 25 % ne connaissent pas de tabacologues dans leurs zones d’activité. Les cardiologues fumeurs interrogent plus rarement leurs patients sur leur tabagisme (90% vs 98% pour les non-fumeurs, \( p = 0.039 \)) et les adressent moins souvent vers un tabacologue (37% vs 64%, \( p = 0.028 \)).

**Conclusions.** — L’implication des cardiologues français dans la prise en charge du tabagisme est faible. Leur propre statut tabagique conditionne leur attitude face à la prise en charge du sevrage tabagique.

© 2009 Publié par Elsevier Masson SAS.

---

**Abbreviations**

CAD coronary artery disease  
NRT nicotine replacement therapy  
PAD peripheral arterial disease  
SCC smoking cessation centre

**Background**

Smoking is considered to be one of the major risk factors for cardiovascular diseases. In the INTERHEART study, smoking corresponded to 35.7% of the population-attributable risk for acute myocardial infarction worldwide [1]. After a cardiovascular event, smoking-cessation counselling is effective in reducing smoking rates [2] and has a significant beneficial effect on mortality [3]. Smoking cessation remains the most cost-effective therapeutic strategy for reducing long-term mortality and morbidity [4,5]. Despite this, the EuroAspire surveys, conducted between 1995 and 2005, showed that almost 25% of smokers in France still continue to smoke 6 months after a myocardial infarction and this rate remained appallingly unchanged throughout this period [6]. In contrast, rates of adequate control for dyslipidaemia improved substantially over the same period [6].

In this nationwide study, we sought to assess cardiologists’ attitudes towards patients’ smoking habits in France. We hypothesized that cardiologists’ levels of knowledge and involvement in smoking-cessation strategies are poor. We also hypothesized that their own smoking status influences the cardiologists’ level of involvement in managing smoking cessation in their patients.

**Methods**

In April 2007, we mailed a questionnaire to 1000 cardiologists in France. They were randomly selected from a list of more than 6000 names in the 2007 professional directory of the *Fédération française de cardiologie*.

The following topics were assessed in the questionnaire:

- the priority of risk-factors management in patients with coronary, peripheral and cerebral artery diseases;  
- assessment of smoking status; smoking rates; cardiologists’ level of knowledge about smoking-cessation counselling and therapies;  
- cardiologists’ level of involvement in the management of smoking cessation, and their collaboration with other healthcare providers.

The cardiologists were also asked to declare their own smoking status. The time required to complete the
questionnaire was estimated at 20 minutes. No financial compensation was offered.

The results are presented as mean ± S.D. for continuous variables and number (percentage) for categorical variables. The χ² test and Student's t-test were performed when applicable. A p-value of less than 0.05 was considered to be statistically significant. Statview 4.0 (SAS Institute, Cary, NC, USA) statistical software was used.

Results

Out of 1000 cardiologists who were sent the questionnaire, 371 completed it (Table 1). Overall, 40% of the cardiologists were ever smokers (80% past smokers). Past smokers were older than non-smokers (51.8 ± 8.2 years vs 48.9 ± 9.0 years, p = 0.048) and current smokers (49.8 ± 8.5 years, p = 0.054).

Smoking cessation as a priority in secondary prevention

Cardiologists were asked to classify the management of five modifiable risk factors (dyslipidaemia, hypertension, obesity, sedentary lifestyle) in three clinical situations: a patient with CAD, a patient with a PAD, and a patient who had had a stroke. A majority classified smoking cessation as the top priority for patients with CAD and PAD (Fig. 1). No statistically significant differences were reported in ranking according to the respondent’s smoking status (data not shown).

Cardiologists estimated that 55% of their patients had stopped smoking following an acute cardiovascular event. However, cardiologists who smoked reported a mean quitting rate of 66%, which was significantly higher than rates reported by those who were non-smokers (54.6%, p = 0.003) or past smokers (53.5%, p = 0.007).

Assessment of smoking habits

Nearly all of the cardiologists (n = 357, 96.2%) always assessed their patients’ smoking status. Compared to 98.2% of non-smokers and 94.2% of past smokers, only 90% of cardiologists who were smokers routinely assessed their patients’ smoking status (p = 0.039 vs non-smokers). By contrast, only 43% of cardiologists routinely assessed passive smoking among their patients. Passive smoking was ‘sometimes’ assessed by 33% of cardiologists and ‘rarely’ or ‘never’ assessed by 24%.

Attitudes towards smokers

Overall, cardiologists reported that 31.7% of their patients were smokers. Regarding their attitudes towards smokers, a majority of cardiologists (n = 315, 84.9%) regularly advised their patients to stop smoking, but only 20 (5.4%) of them provided follow-up smoking-cessation support. These two groups were considered to offer “active” approaches to smoking-cessation counselling (total of 335 cardiologists, 90.3%). Conversely, 34 (9.2%) cardiologists only warned their patients about the hazards of smoking and two (0.5%) rarely discussed smoking cessation with patients who smoked; these cardiologists were considered to have “passive” approaches to smoking-cessation counselling.

Non-smoker cardiologists followed an active approach in 92.7% of cases, similar to 89.2% in past smokers. This contrasted with 76.7% of cardiologists who were current smokers (p = 0.011 vs non-smokers, p = 0.12 vs past-smokers).

![Table 1](image-url)
When asked who they consider to be the most appropriate person to offer smoking-cessation counselling, 27.5% of cardiologists said themselves, with no difference in response rates according to their own smoking status. Overall, smoking-cessation centres (46%) and general practitioners (33%) were considered the most appropriate healthcare providers for offering smoking-cessation counselling.

Cardiologists were also questioned about their attitude when a patient asks for medical support. While a majority referred their patients to a quitline service and/or a smoking-cessation centre (Fig. 2), cardiologists who smoked were more likely to refer these patients to their general practitioner than were non-smoker cardiologists ($p = 0.047$).

Knowledge of smoking-cessation management

Of the 371 cardiologists, 316 (85.2%) reported never having received any specific education or training for the management of smoking cessation. Seven (1.9%) cardiologists had taken a university course on smoking cessation and the remaining 48 (12.9%) participated in various programmes of continuing medical education. The rates of specialized training for smoking cessation were similar in younger ($\leq 50$ years) and older individuals ($> 50$ years), at 13.1% and 17.8%, respectively ($p = 0.30$). In contrast, when the cardiologists were asked to estimate their level of knowledge on the management of smoking cessation, 108 (29.2%) considered themselves well informed, 191 (51.6%) partially informed, and 71 (19.2%) poorly informed. A total of 146 (39.4%) were willing to participate in specific training on smoking cessation. These response rates did not differ according to their smoking status (data not shown).

International guidelines recommend that physicians assess the smoking status of their patients and briefly advise smokers to stop [7]. This approach, the so-called “minimal counselling”, is also promoted in the French national guidelines [8]. The cardiologists were asked what they knew about “minimal counselling”. While 148 cardiologists responded that they knew what the “minimal counselling” meant, only 27 (7.3% of the total group) provided the correct answer. None of the 30 cardiologists who smoked responded correctly.

Drug prescription for smoking cessation

Fig. 3 displays the prescription rates of nicotine-replacement therapy (NRT) and bupropion. While varenicline had been approved by the French Drug Agency shortly before the study started, and was released into the market at the same time as the questionnaires, we asked the cardiologists about their “intention” to prescribe this drug, rather its actual prescription. Overall, the proportion of cardiologists who would frequently prescribe these medications was low. One in five cardiologists prescribed NRT on a regular basis. While the regular use of bupropion was dramatically low, more cardiologists were keen to prescribe varenicline during the study period. For assessment of physical addiction, only 17.5% of cardiologists used the Fagerström questionnaire [9] and 2.1% used a breath carbon monoxide analyser.

In two open questions, we asked the participants to state their main criteria for deciding whether or not to prescribe NRT or bupropion. They were also asked to state the main reasons for not prescribing these medications. The five most frequent answers for each drug are presented in Table 2. A high level of nicotine addiction assessed by the Fagerström questionnaire was cited by only 19% of participants as a criterion for NRT prescription. For almost 30% of cardiologists, prescribing NRT was beyond their competence or field of activity.

Cooperation with smoking-cessation centres (SCC)

Overall, the cardiologists declared referring 23.6% of their patients who smoked to a SCC. While only 31 (8.3%) routinely referred their patients to a SCC, 54 (14.5%) sent more than half of their patients to a SCC; 118 (31.8%) cardiologists never sent any of their patients to these centres. Notably, 25% of cardiologists were not informed about the presence of...
Table 2  Five most frequent criteria for prescribing or avoiding nicotine-replacement therapies (NRTs) or bupro- pion by French cardiologists.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Response rates (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine-replacement therapies</td>
<td></td>
</tr>
<tr>
<td>Five main criteria for prescribing</td>
<td></td>
</tr>
<tr>
<td>Motivated patients</td>
<td>26.5</td>
</tr>
<tr>
<td>Heavy smokers</td>
<td>25.2</td>
</tr>
<tr>
<td>Patients’ poor willpower</td>
<td>24.9</td>
</tr>
<tr>
<td>High Fagerström score</td>
<td>19.1</td>
</tr>
<tr>
<td>Severe cardiovascular disease</td>
<td>11.5</td>
</tr>
<tr>
<td>Five main reasons not to prescribe</td>
<td></td>
</tr>
<tr>
<td>‘’It is not my role’’ or ‘’should be prescribed by others’’</td>
<td>29.9</td>
</tr>
<tr>
<td>Patient not motivated to undertake smoking cessation</td>
<td>28.2</td>
</tr>
<tr>
<td>Do not know when or how to prescribe</td>
<td>6.1</td>
</tr>
<tr>
<td>Lack of efficacy or useless</td>
<td>5.4</td>
</tr>
<tr>
<td>Unstable coronary disease</td>
<td>3.1</td>
</tr>
<tr>
<td>Bupropion</td>
<td></td>
</tr>
<tr>
<td>Five main criteria for prescribing</td>
<td></td>
</tr>
<tr>
<td>When NRT failed</td>
<td>33.3</td>
</tr>
<tr>
<td>Patients’ poor willpower</td>
<td>19.7</td>
</tr>
<tr>
<td>Psychiatric/mood disorders</td>
<td>11.1</td>
</tr>
<tr>
<td>Motivated patients</td>
<td>8.5</td>
</tr>
<tr>
<td>Heavy smokers</td>
<td>7.7</td>
</tr>
<tr>
<td>Five main reasons not to prescribe</td>
<td></td>
</tr>
<tr>
<td>Contraindications and adverse effects</td>
<td>33.6</td>
</tr>
<tr>
<td>‘’It is not my role’’ or ‘’should be prescribed by others’’</td>
<td>24.6</td>
</tr>
<tr>
<td>Lack of efficacy or useless</td>
<td>13.5</td>
</tr>
<tr>
<td>Do not know when or how to prescribe</td>
<td>10.7</td>
</tr>
<tr>
<td>Patient not motivated for smoking cessation</td>
<td>5.2</td>
</tr>
</tbody>
</table>

* Response rates were calculated among those who declared prescribing the corresponding medication.

Figure 4.  Main criteria used by French cardiologists for referring patients to smoking-cessation centres.

Figure 5.  Cardiologists’ reported experiences of smoking-cessation centres.

Discussion

This study confirms our main hypothesis that in our country, levels of knowledge and involvement in the assistance and management of smoking cessation among cardiologists are poor. Despite this, these cardiologists classify smoking cessation...
cessation as the top priority in preventive strategies for patients with coronary and peripheral artery diseases. Even though French cardiologists almost always assess their patients’ smoking status, most do not have the ability to accurately counsel their patients on smoking cessation or provide tailored medical advice to improve cessation rates. Of note, while smoking cessation is one of the most efficient and rapid strategies to reduce further events in patients with CAD, cardiologists considered it as a top priority less frequently compared to patients with PAD. This is presumably related to the importance of smoking among PAD patients, as well as the fact that preventive trials during the past 20 years have strongly stressed the benefits of statins in CAD patients, diverting physicians’ attention more towards dyslipidaemia.

A majority of participants do not systematically assess their patients for passive smoking, despite the fact that second-hand smoke can increase cardiac risk up to 30% [10,11]. It should, however, be emphasized that the proportion of cardiologists who routinely assessed passive smoking appeared to be high. This could be explained partly by the fact that our survey was undertaken only 3 months after the publication of a new law banning smoking in most public places in France.

While many of the cardiologists admitted to being unaware about basic strategies to promote smoking cessation and improve success rates, less than half were keen to undertake specialized training. Almost 75% did not consider themselves to be a first level provider of smoking cessation support. It appears that French cardiologists do not perceive smoking-cessation counselling and support as one of their core areas of responsibility, and too many fail even to delegate this task to another physician.

Compared to the high rates of use of lipid-lowering and antihypertensive drugs, the rate of prescription of smoking-cessation drugs appeared to be very low. The indications for these treatments did not appear to be clear for the cardiologists in our survey. Several criteria reported for the use of drug therapies do not actually correspond to the level of physical addiction, but are rather related to a range of factors, from cardiovascular disease severity to the patient’s willpower. It has been suggested that tobacco dependence is not a priority for the pharmaceutical industry, and this could influence the lack of information regarding the prescription of these medications [12]. Major efforts are needed to implement specialized educational and training courses to educate cardiologists about these drugs and their indications.

Since 2003, a full coverage of the continental French territory was assured by the SCC, with at least one centre per administrative region. In these centres, patients are counselled and treatments are prescribed, if needed. Follow-up is arranged, with several consultations for up to 1 year after effective smoking cessation, to reduce the risk of relapse [13]. In these centres, healthcare providers have specific training in smoking-cessation support and have more dedicated time available compared with GPs or cardiologists. In our study, the level of collaboration between SCCs and cardiologists (59.6%) is very similar to that reported by cardiologists in the United States (59.7%) [14]. While cardiologists should be more willing to refer their patients to these units, such referrals do not preclude the need for them to offer information about the hazards of smoking, especially in those who continue to smoke.

In this study, we found disparities in responses among cardiologists who smoked or did not smoke. Overall, 8.1% were active smokers, which is dramatically lower than the 27% reported in the first survey conducted in France in 1993 [15], but is still substantially higher than the 4.3% rate reported for the Netherlands [16] as well as the 1.3% rate for the United States [17]. Compared with non-smokers, cardiologists who smoked were less likely to assess routinely their patients’ smoking status. Our data also suggest that cardiologists who smoked were probably too optimistic about their patients’ self-management of smoking cessation after a cardiovascular event. They also had a less active attitude towards counselling and providing assistance to patients who smoked. In addition, cardiologists who smoked were less likely to offer smoking-cessation counselling to their patients or refer them to SCCs or quitlines. Our findings suggest that as smokers, these cardiologists are less sensitive about this risk factor and are less aggressive in its management. Overall, their attitudes might also be considered as a denial of the importance of smoking cessation, not only for their patients but also in terms of their own health. The fact that cardiologists who were past smokers presented different response rates to those who were active smokers but were similar to non-smokers also supports this hypothesis. This attitude of ‘denial’ by physicians who smoke has been described in an earlier study of French cardiologists, as well as in another survey of physicians conducted in California [18].

The major limitation of our study is that the data are self-reported and restricted to those cardiologists who responded to the mailing. The 37.1% response rate is equivalent to the 33.6% rate during the 1993 French survey [15], but lower than the 50.5% response rate obtained in a Dutch survey [16] and the 59% rate in an American survey [17]. We cannot exclude selection bias, with greater participation by physicians who are more interested in this topic. Hence, even our “poor” results should be considered as overoptimistic. Another limitation is the low number of cardiologists who were active smokers (n = 30), with the possibility that more differences could be revealed if a larger proportion of smokers had participated. Finally, our findings are only limited to our country and cannot be extrapolated to other countries. An international cooperative study within European Community countries is therefore highly recommended.

Conclusions

In this nationwide survey in France, we highlight major deficiencies of the cardiologists in the assessment and management of their patients who are smokers. In addition to the low-level of knowledge of smoking-cessation strategies, many cardiologists are unwilling to receive additional training, considering that the provision of smoking-cessation support is not their primary role. Furthermore, many cardiologists fail to delegate this task to other healthcare providers. We also found that cardiologists who smoked were even less involved in the assessment and
management of patients who smoked. Past smokers had a greater interest in the management of smoking as a risk factor among their patients, similar to that observed among non-smoker cardiologists. Major efforts are necessary at national and European levels to increase awareness among cardiologists of this important risk factor, and to improve their understanding of smoking as a chronic disease, as well as the effective strategies available to reduce relapse.

Conflicts of interests

None.

Acknowledgements

The authors thank Pfizer Inc. France for their financial support for the mailing of the questionnaires.

References
