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Statins for primary prevention in multimorbid patients: to prescribe or not to prescribe? A qualitative analysis of general practitioners' decision-making processes

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Introduction: A better understanding of the determinants involved in general practitioners' (GPs) decision-making processes when it comes to prescribing statins as primary prevention in patients with multimorbidity could provide insights for improving implementation of primary prevention guidelines.

Methods: We conducted a qualitative study using a deductive framework-based and inductive analysis of GPs' semi-structured interviews verbatim, from which expertise profiles of prescribers were also drawn. The analytical framework was built from a pragmatic synthesis of the evidence-based medicine, Modelling using Typified Objects (MOT) model of clinical reasoning processes, Theoretical Domains Framework, and shared decision-making frameworks.

Results: Fifteen GPs were interviewed between June 2019 and January 2020. Diabetes seemed to represent a specific motivation for deciding about statin prescription for primary prevention purposes; and in situations of multimorbidity, GPs differentiated between cardiovascular and non-cardiovascular multimorbidity. Expert prescribers seemed to have integrated the utilisation of cardiovascular risk calculation scores throughout their practice, whereas non-expert prescribers considered them difficult to interpret and preferred using more of a "rule of thumb" process. One interviewee used the risk calculation score as a support for discussing statin prescription with the patient.

Conclusion: Our results shed light on the reasons why statins remain under-prescribed for primary prevention and why non-diabetic multimorbid patients have even lower odds of being prescribed a statin. They call for a change in the use of risk assessment scores, by placing them as decision aids, to support and improve personalised shared decision-making discussions as an efficient approach to improve the implementation of recommendations about statins for primary prevention.

Key words: cardiovascular prevention, clinical reasoning, decision aid, decision making, shared decision making, statin

Introduction

Despite strong evidence supporting their utilisation in patients at high cardiovascular risk, statins for primary prevention remain under-prescribed,[1–4] in simple as well as complex medical situations such as multimorbidity.[2,5] There is limited evidence on how general practitioners (GPs) prioritise health issues and decide in contexts of multimorbidity. For GPs to achieve a more efficient practice, several authors have already recommended combining the quantitative approach to multimorbidity with qualitative elements.[6,7] The results of a previous quantitative study suggested that GPs might differentiate between clusters of multimorbidity, and more importantly that diabetes could be the prevailing determinant in their decision to prescribe statin therapy for primary prevention purposes, regardless of the presence or absence of multimorbidity.[5] However, this can only be considered as a hypothesis since the quantitative data did not provide a full understanding of the decision-making process. The specific factors involved in this process, including the GPs profiles

and levels of expertise when it comes to prescribing or not prescribing, or even deprescribing, statins for primary prevention in patients with multimorbidity, may also influence the shared decision-making process. The latter is the approach multimorbid patients seem to expect from their GP[8] and the most recent applicable guidelines emphasise the importance of personalised shared decision making as an efficient way to improve implementation of primary prevention recommendations concerning statins.[1,9]

Hence, the aim of this study was to explore the determinants involved in GPs' decision-making processes when it comes to prescribing statins as primary prevention in patients with multimorbidity according to their profiles of expertise.

Methods

We performed a qualitative analysis of verbatim texts obtained through semi-structured interviews with a purposeful sample of French GPs and conducted a deductive framework-based

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Key messages

- GPs differentiate between cardiovascular and non-cardiovascular multimorbidity.
- Diabetes seems to trigger statin prescription for primary prevention.
- Most GPs don't use risk calculation scores for risk assessment.
- Expert GPs seem to have integrated their utilisation throughout practice.
- Cardiovascular risk assessment scores should be used as decision aids tools.
- This paradigm shift is needed to support shared decision-making processes.

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and an inductive qualitative analysis. We opted for a phenomenological approach as part of an epistemological constructivist perspective.

Setting

This qualitative study was the second part of a 2-step study conducted in GPs' offices in the French region of Rhône Alpes. The first quantitative cross-sectional study focussed on statin under-prescription for primary prevention and the factors associated with statin prescription in accordance with the guidelines, more specifically in multimorbid patients.[5] This second qualitative study aimed to provide a deeper understanding of the quantitative findings. In line with international guidelines, French guidelines were based on cardiovascular risk assessment, with diabetic patients considered at high risk.

Framework

Decision making is a dynamic and complex process. To provide pragmatic and purposeful insights for the improvement of professional practices, we pre-selected 4 frameworks: (i) Evidence-based medicine,[10] (ii) the Modelling using Typified Objects (MOT) model of clinical reasoning processes (a hierarchical model depicting different facets of clinical reasoning and providing a chronological and multidimensional analysis of a consultation from initial to final representations of the problem until decision making),[11] (iii) the Theoretical Domains Framework (a 14-determinants model identifying factors that influence behaviours),[12] and (iv) shared decision making[13]; since none of these frameworks by themselves were sufficient to fully describe the determinants involved in decision making.

Using an iterative process of research, reflection, and synthesis, we selected the dimensions and items from each framework that could be implemented as pragmatic lines of action to put into practice, and combined them into one synthetic analytical framework.

Population recruitment

Potential participants were recruited using the snowball method with purposive sampling aiming at maximal variation based on the following criteria: gender, age, duration of clinical practice, continuing medical education, type of practice (alone, group, and pluri-professional structure), and participation in resident clerkships.

There were no direct relationships between the participants and the investigators, although previous work ties were accepted.

GPs who agreed to participate received an information notice with all relevant information about the study, including that interviews would be recorded. Informed consent was obtained from all participants.

Data collection

We used the framework described above to design an interview guide, composed of open-ended questions and probes inspired from explicitation interviewing techniques. The interview guide was pilot tested, but pilot interviews were not included in the study material.

Semi-structured interviews were conducted in the GPs' practices (AB, TB, and JB), audio recorded, and transcript verbatim.

Analysis

We performed a 5-step process inspired by the framework method,[14] based on a deductive coding using a priori codes from the analytical framework described above followed by an inductive coding aiming to reach a wider and richer understanding of the determinants of statin prescription for primary prevention purposes in multimorbid patients involved as well as drawing the prescribers profiles, beyond the a priori codes (Fig. 1).

We used an iterative process through coding performed independently by 2 researchers, with an additional independent coding of the first 3 transcripts by a more experienced researcher, using ATLAS.ti 8 software, inter-coder comparison, and discussion between research team members to agree on the final set of themes.

Saturation was considered to have been reached when no new inductive codes appeared and there was no new use of any a priori codes in a least 2 verbatim.
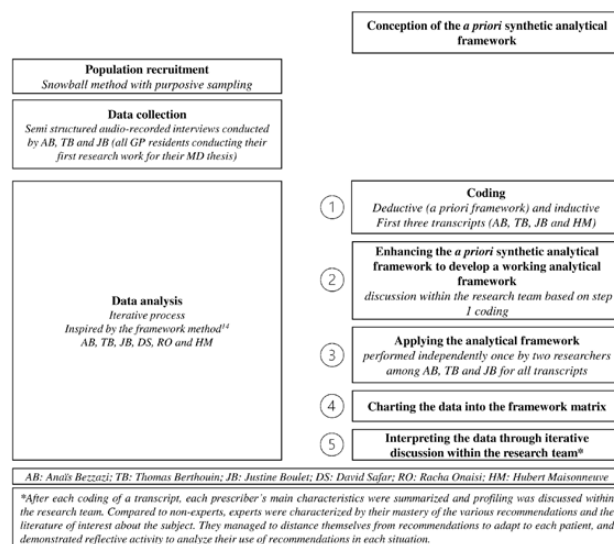

Fig. 1. Flowchart and steps of data analysis.

Results

Characteristics of the study population

Twenty-one GPs were contacted, 5 did not respond and 1 declined participation. Fifteen GPs (71.4%) were interviewed between June 2019 and January 2020. We reached saturation of emerging themes after 13 interviews.

Expert and non-expert profiles of prescribers emerged from the iterative processes of data analysis (Table 1, Fig. 1).

Determinants involved in the statin-prescription decision

For most interviewed GPs, diabetes seemed to represent a specific motivation for prescribing a statin for primary prevention purposes (C1, Table 2); and was even considered a factor calling for secondary prevention by one of the interviewees (C2, Table 2).

In cases of multimorbidity, interviewees seemed to differentiate between cardiovascular and non-cardiovascular

Table 1. Characteristics of participants.

Itw*	Age	Gender	Duration of practice	Continuing medical education	location of practice	Type of practice	Participation in residents clerkship	Prescription profile
AB_01	36	F	9	Yes	City	Pluri-pro	No	Non-expert
AB_02	52	M	32	No	Semi-rural	Group	Yes	Non-expert
AB_03	45	F	15	No	Semi-rural	Group	Yes	Non-expert
AB_04	62	M	33	Yes	City	Alone	Yes	Non-expert
AB_05	30	M		No	City	Alone	No	Expert
JB_01	29	F		No	City	Group	No	Non-expert
JB_02	33	F	4	Yes	City	Group	No	Non-expert
JB_03	35	M	5	Yes	City	Group	Yes	Expert
JB_04	63	M	32	No	City	Alone	Yes	Non-expert
JB_05	65	F	15	Yes	City	Group	No	Non-expert
TB_01	54	F	22	Yes	Rural	Group	No	Non-expert
TB_02	41	F	13	Yes	Rural	Group	Yes	Non-expert
TB_03	50	F	22	Yes	Rural	Pluri-pro	Yes	Non-expert
TB_04	42	M	12	Yes	Rural	Pluri-pro	Yes	Expert
TB_05	55	M	22	No	Rural	Group	Yes	Non-expert

Itw = interviewee.

Table 2. Verbatim citations.

Citation	Verbatim	Interviewee
C1	*I happened to say to myself "Oh damn, he has diabetes and… well he doesn't have a statin" things like that.*	JB_01
C2	*For a person who has diabetes, where we are talking about secondary prevention, I don't even ask myself the question.*	AB_02
C3	*If they have other comorbidities that have nothing to do with cholesterol […] I take them out.*	JB_05
C4	*I feel like there are patients, with polymedication, with multimorbid status, but with independent pathologies, that are not labelled as "vascular" […], and that are rather over-treated.*	TB_03
C5	*What I am going to say isn't good, but, truth be said, depending on the risk factors, we, ourselves, are more or less convinced of the statin's interest.*	AB_02
C6	*But the SCORE table, I don't think it really provides an answer […], It makes me feel, really, that it's just about numbers. Whereas there are many other small parameters that make one think for this patient, even if he has a 6% risk in 10 years, do I really want to put him on statins?*	TB_04
C7	*But truth be told, maybe sometimes I am not completely straight, with some flexibility. But also, because I am not fully convinced, I think.*	TB_04
C8	*She is, for me, she has a moderate risk level (according to the SCORE table) but, in the end, I am rather convinced, even if it is a personal view, I think that heredity weighs much more than all the other cardiovascular risk factors; and so, her father also died from myocardial infarction, although he was much older, so in the strict sense of the term it is not a risk factor, but I am certain that she is at high risk, she has 2 grammes of LDL, if she were my mum I would tell her off and tell her to take a statin.*	AB_05
C9	*I used to pull it out (the SCORE table), but I don't anymore. I mostly use, or rather I go with what I feel, and with the LDL target, that's all. I could pull out the risk score if the patients are really reluctant and I feel they are in the red zone (of the SCORE table), and then it's really to show them where they are at.*	TB_01

multimorbidity when deciding whether or not to prescribe statins. Fewer prescriptions, and even a de-prescription process in cases of non-cardiovascular multimorbidity (C3 and C4, Table 2), were observed.

One of the main characteristics of experts was their mastery of the use of cardiovascular risk calculation scores. They seemed to have fully integrated the SCORE table utilisation in their practice. On the other hand, non-expert prescribers mostly relied on counting the number of known cardiovascular risk factors and ranking the weight they attributed to each risk factor in their decision scales (C5, Table 2), that is using more of a "rule of thumb" process. Certain interviewees (including an expert prescriber [C6, Table 2]) described difficulties in the utilisation and interpretation of risk calculation scores. Moreover, even for expert prescribers, a heuristic-based reasoning process could end up weighing more than the results of a risk calculation score (C7, C8, and C9, Table 2).

Interestingly, one participant twisted the risk calculation score function and used it only as support for providing information and discussing statin prescription with the patient (C9, Table 2).

Discussion

Our work reinforces the conclusion that non-expert GPs rely mainly on heuristic-based reasoning, strongly prioritising primary prevention for diabetic patients, while expert GPs also describe routine use of risk calculation scores. An alternative use of scores to support shared decision making was described. In situations of multimorbidity, GPs differentiate between cardiovascular and non-cardiovascular multimorbidity to decide about statin prescription for primary prevention. Our results shed light on the reasons why statins remain under-prescribed for primary prevention and why non-diabetic multimorbid patients have even lower odds of being prescribed a statin.

Most GPs don't use risk calculation scores for risk assessment, mainly because they are not always easy to interpret, and they provide absolute risk calculations that are not always consistent with the GP's risk assessment.[15] They are not perceived as clinically relevant and patient centred, which is consistent with previous studies.[16] If some rely on the scores only to reach a shared decision with the patient, most describe a doctor-led decision process. This might be specific to our context, with guidelines not addressing shared decision making. This underlines the need for clear and pragmatic guidelines on how to interpret cardiovascular risk assessment scores with considerations about the expected benefits of initiating statin therapy, especially in multimorbid patients. This could be part of a much-needed paradigm shift in the use of cardiovascular risk assessment scores, by placing them as decision aids, that is tools to support and inform shared decision-making discussions by giving patients the information they need to help them come to a decision,[17,18] instead of tools for triggering automated prescription.

This would constitute a promising perspective,[19] especially for multimorbid patients, whether diabetic or not, who are most likely to benefit from them.[20] For example, in an effort to implement such a process within an interprofessional primary care team, protocols could plan for risk assessments to be conducted by a medical assistant and recorded in the shared medical record, thereby helping the GP and/or the ad-

vanced practice nurse to identify patients for whom a consultation focussed on primary cardiovascular prevention could be required. The consultation's objective would be to reach a shared decision about the interventions that would be most appropriate, including statin prescription if relevant, through the use of decision aids.

Despite the interviewers' relative inexperience in qualitative research, the validity of the results is supported by the strong conceptual framework used for analysis, combined with the systematic and iterative triangulation process between researchers, the saturation level, and relevance of the findings to the existing literature. The interview guide and use of explicitation interviewing techniques limited the social desirability bias. The use of a qualitative design allowed us to confirm the role of diabetes as a major trigger of statin prescription[5] in GPs' reasoning. Our method enabled alternative use of risk calculation scores to emerge.

Conflict of interest

The authors declare that this research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Ethical approval

In accordance with the relevant French legislation, no ethical approval was required for this kind of research.

Data availability

The data that support the findings of this study are available on request from the corresponding author.

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