The role of dyslipidemia and gender-related risk factors in the management of patients with abdominal aortic aneurysms: a survey from the Italian Society of Angiology and Vascular Medicine and a call to action

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ABSTRACT

Background: Abdominal aortic aneurysm (AAA) affects 1-3% of adults and carries a high fatality rate if ruptured. Although it is more common in men, women tend to have worse outcomes. Screening high-risk individuals is cost-effective, and lipid-lowering therapies (LLT) improve survival but are often underused, especially among women.

Methods: The Italian Society for Angiology and Vascular Medicine (SIAPAV) conducted a survey among healthcare professionals on AAA management, with a particular focus on lipid profile assessment, treatment, and gender differences.

Results: In a lipid management survey (64 respondents), most assessed lipid levels but rarely measured lipoprotein(a). Only 42.2% reported treating over 70% of their patients with statins, despite low rates of intolerance. A gender-specific survey (78 respondents) showed that women accounted for less than 20% of AAA patients, with limited evaluation of gynecological and obstetric histories, despite their importance as cardiovascular disease risk factors.

Conclusions: Current guidelines recommend statins and LDL-C levels below 55 mg/dL for AAA patients; however, LLT remains underprescribed, particularly in women. These findings underscore the need for improved AAA management and greater attention to gender-specific risks, highlighting the importance of international collaboration.

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Introduction

Abdominal aortic aneurysm (AAA) is a cardiovascular disease (CVD) occurring in 1% to 3% of the adult population and characterized by a high fatality rate in case of rupture.[1] The prevalence of AAA increases with age and even if it is four times more common in men than women,[2] the latter have a worse prognosis.[3] Age, smoking, hypertension, and family history of AAAs are just some of the most common recognized risk factors. Screening programs, especially when performed in those high-risk patients, have been demonstrated to be cost-effective.[4] Besides, data suggest that addressing CVD risk factors and prescription of lipid lowering therapies (LLT) improves long-term survival rates.[5,6] However, these recommendations are often disattended in clinical practice, especially in women.[7,8]

The Italian Society for Angiology and Vascular Medicine (SIAPAV) undertook two online anonymous, voluntary surveys among healthcare professionals to evaluate i) contemporary practices in lipid management of patients with AAA and ii) assessment of gender-specific risk factors among women with AAA.

Materials and Methods

The surveys consisted in two multiple choice questionnaires and were distributed to 712 members of the Society in March 2023. The survey on lipid management was responded by 64 sub-

jects (9%), most of whom were specialized in angiology (35.9%), vascular surgery (32.8%) or internal medicine (25.0%), with a broad range of expertise: 19 (29.6%) reported to visit at least 50 patients with AAA yearly, while another 29.6% less than 10. As reported in Figure 1A, 62% of participants reported that they assess lipid levels in more than 90% of patients, while lipoprotein(a) was assessed in less than 30% of patients in most cases (56; 87.5%). For what concerns LLT, statins were reported as the preferred drug, but only 42.2% of participants responded that more than 70% of their patients are treated with statin therapy, despite a low proportion of intolerant subjects (<30% according to 78.1% respondents). On the other side, ezetimibe and combination therapy were reported to be considered in a minority of subjects (<30% was the option selected by 48.4% and 40.6%, respectively). Interestingly, when asked if they considered useful to prescribe statin therapy in subjects with AAA less than 5 cm in diameters, most answered yes (76.6%), while 11 (17.2%) responded "only in presence of hypercholesterolemia" and the remaining no/no evidence available.

Results

The survey on gender was responded by 78 participants (11%), with a similar expertise of that reported for the lipid survey (Figure 1B). As expected, the proportion of women with AAA was reported to be less than 20% by most participants (59, 76.6%). Considering the proportion of women followed for AAA, gynecological and obstetric history were reported to be investigated by a minority of respondents (33.3% and 27.3%, respectively). Depression was explored by almost half of the participants, while the presence of family history or autoimmune disease by a great majority (96% and 90%, respectively). Finally, 69.2% of participants reported that the managements of their patients with AAA is not influenced by gender.

Discussion

These data confirms that most patients are receiving substandard clinical care, at least in the setting of LLT prescription. The management of LLT requires assessment of lipid profile in all patients, but it should include also lipoprotein(a), which has been demonstrated to be a determinant of CVD events and a risk factor for AAA development.[9,10]

The 2019 ESVS guidelines on the management of abdominal aorto-iliac artery aneurysms recommend that all patients with AAA should receive statin therapy, and the 2021 ESC guidelines on CVD prevention included these subjects in the highest risk group, with an LDL target of <55 mg/dL.[11,12] Several studies documented that statins may decrease the progress of AAA and the risk of rupture by suppressing the inflammatory mediators, decreasing oxidative stress, and inhibiting mechanisms involved in extracellular matrix degradation.[13] Besides, a recent study including patients with AAA estimated that if the mean LDL-C of the cohort had been reduced by 1 mmol/L (from a mean value of 2.4 mmol/L -IQR 1.8-3.0), this could have reduced the absolute risk of major CVD events by 6.5% (95% CI 4.4-8.7; NNT 15).[14] These data support an aggressive LLT prescription in patients with AAA, and underly the need of improving CVD management. This is par-

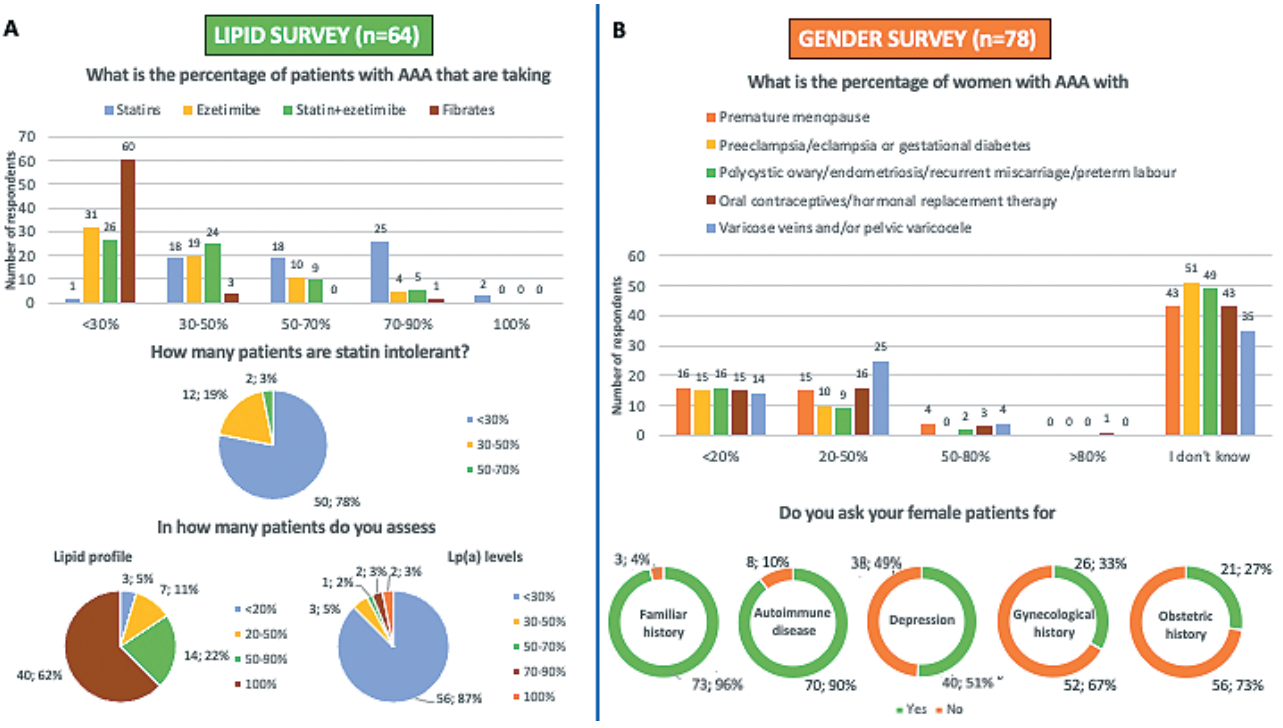

Figure 1. A) Results of the lipid survey. B) Results of the gender survey. In all cases a single answer was possible.

ticularly necessary in women with AAA, who are traditionally less likely to be prescribed LLT and achieve LDL target compared to men.[7]

In this setting, another important issue is represented by the assessment of gender-specific CVD risk factors. Preeclampsia and gestational hypertension, gestational diabetes, preterm delivery, early onset menopause, polycystic ovarian syndrome, hormone-based contraceptive and menopausal therapy are just some of the women-specific risk-enhancing factors that are associated with an increased risk of CVD in women.[15] As emerged in the present survey, these aspects are still explored in a minority of women with AAA. Indeed, few studies have addressed gender-specific risk factors in patients with AAA, although some reports documented the role of sex hormone in this setting.[16-18]

It should be acknowledged that the low number of respondents with a broad spectrum of expertise may represent a limitation for generalizability of these findings. Besides, other potential confounding factors that may explain the underuse of LLT, such as socioeconomic factors, could not be excluded.

Conclusions

In conclusion, even if these surveys are limited by the low number of respondents, they suggest that there is much room for improvement in the management of patients with AAA. These data underly the need of targeted education for physicians in order to improve awareness of benefit of LLT in these patients. Moreover, eliciting a thorough obstetrical and gynecological history during cardiovascular risk assessment of women may establish the basis for future research to confirm the role of gender-specific risk factors also in patients with AAA. The authors believe that these results could constitute the starting point for a genuine international *Call to action* under the umbrella of European and North American Societies of Vascular Medicine.

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