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Manjula S
Senior Vice President,
Department of Medical
Services, Micro Labs Limited,
Bangalore, Karnataka, India

Krishna Kumar M
Department of Medical
Services, Micro Labs Limited,
Bangalore, Karnataka, India

Clinicians perspectives on rosuvastatin in the management of dyslipidemia

Manjula S and Krishna Kumar M

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Abstract

Background: Treating dyslipidemia, which is an important risk factor for life-threatening conditions such as heart attack, stroke, and other cardiovascular events, continues to be a dynamic topic. Moreover, an understanding of the appropriate treatment plan for dyslipidemia based on the patient's condition is essential for practitioners across medical specialties.

Methods: A questionnaire-based survey among 544 clinicians focusing on the prevalence, symptoms, causes, clinical characteristics, management of dyslipidemia, and the usage of rosuvastatin therapy in clinical practice will be useful to improve the clinical practice of lipid management.

Results: About 96.3% of clinicians preferred rosuvastatin for patients with dyslipidemia. 50.2% reported excellent reviews and 54.8% agreed on the results of the HOPE-3 trial on rosuvastatin. Nearly one-third of clinicians preferred prescribing 10mg dose of rosuvastatin. Almost 89.2% did not feel pill burden and poor compliance as a big challenge in managing dyslipidemia. Only 57.5% of doctors preferred clopidogrel and 42.1% preferred aspirin as a combination drug to act with rosuvastatin. The combination of rosuvastatin + clopidogrel + aspirin was required only for 11-25% of their patients. 53.3% of doctors reported an improvement in overall outcomes by the combination of statin and dual antiplatelet therapy. For patients with high triglycerides, 82% of doctors surveyed preferred the fenofibrate + rosuvastatin combination.

Conclusion: Despite the challenges in managing dyslipidemia, clinicians generally felt confident in their ability to address this condition effectively. This survey highlights the importance of tailored dyslipidemia management and the significance of evidence-based approaches to reduce cardiovascular risks.

Keywords: Dyslipidemia, rosuvastatin, acute coronary syndrome, cholesterol, statins

Introduction

Dyslipidemia is a medical condition characterized by an abnormal amount or distribution of lipids (fats) in the bloodstream [1]. Lipids are an essential component of our body's cells and play a crucial role in various physiological processes, including energy storage, insulation, and the formation of cell membranes [2]. When there is an imbalance in the levels of different types of lipids, it can lead to health problems, particularly concerning cardiovascular health. Dyslipidemia is a significant risk factor for conditions such as atherosclerosis, heart disease, and stroke [3].

The term "lipids" includes various types of fats, with the most measured components in a lipid profile being cholesterol and triglycerides. Cholesterol is further divided into high-density lipoprotein (HDL) and low-density lipoprotein (LDL), often referred to as "good" and "bad" cholesterol, respectively [4]. Elevated levels of LDL cholesterol are a hallmark of dyslipidemia. LDL cholesterol tends to deposit on the inner walls of arteries, forming plaques that can narrow and block blood vessels, leading to atherosclerosis [5]. Low levels of HDL cholesterol can impair the body's ability to remove excess cholesterol from the bloodstream, contributing to the accumulation of LDL cholesterol. Elevated triglyceride levels can increase the risk of cardiovascular disease, especially when combined with other lipid abnormalities.

A combination of genetic factors and lifestyle choices often influences dyslipidemia. Unhealthy dietary habits, physical inactivity, obesity, smoking, and excessive alcohol consumption can all contribute to the development of dyslipidemia.

Corresponding Author:
Manjula S
Senior Vice President,
Department of Medical
Services, Micro Labs Limited,
Bangalore, Karnataka, India

Moreover, some medical conditions, such as diabetes and metabolic syndrome, can also predispose individuals to dyslipidemia [6]. The consequences of untreated dyslipidemia can be severe, as it significantly raises the risk of heart attacks, strokes, and other cardiovascular events [7].

Therefore, diagnosing and managing dyslipidemia is essential for preventing these life-threatening conditions. Treatment typically involves lifestyle modifications such as adopting a heart-healthy diet, increasing physical activity, quitting smoking, and limiting alcohol intake. In some cases, medication may also be prescribed to help lower lipid levels to a safer range [8].

Considering the complex nature of dyslipidemia, it is important to adopt a healthy lifestyle and regular medical check-ups to monitor and manage lipid levels effectively. Early detection and appropriate intervention can greatly reduce the risk of heart disease and improve overall health and well-being. At present, the treatment options for dyslipidemia are also expanding, including the use of rosuvastatin. However, nothing is known about the prescribing pattern of medications used for treating dyslipidemia. Hence, this study aimed to assess the prevalence, symptoms, causes clinical characteristics, management of dyslipidemia, and the usage of rosuvastatin therapy in clinical practice.

Materials and Methods

We carried out a cross sectional, multiple-response questionnaire based study among clinicians specialized in treating dyslipidemia patients in the major Indian cities from June 2022 to December 2022.

Questionnaire

The questionnaire booklet titled START (Clinical inSights on Therapeutic benefits of Rosuvastatin and its combination in Dyslipidemia) study was sent to the physicians who were interested to participate. The START study questionnaire regarding the prevalence, symptoms, causes, clinical characteristics, management of

dyslipidemia, and the usage of rosuvastatin therapy in clinical practice. The study was conducted after receiving approval from Bangalore Ethics, an Independent Ethics Committee which was recognized by the Indian Regulatory Authority, Drug Controller General of India.

Participants

An invitation was sent to leading clinicians in managing dyslipidemia in the month of March 2022 for participation in this Indian survey. About 544 doctors from major cities of all Indian states representing the geographical distribution shared their willingness to participate and provided necessary data. Clinicians were requested to complete the questionnaire booklet without discussing with their peers. A written informed consent was obtained from each clinician's prior initiation of the study.

Statistical analysis

Descriptive statistics were applied to the data analysis. To illustrate the distribution of categorical variables, percentages were used in the presentation. The distribution of each variable was shown by the frequency of occurrence and the corresponding percentage. Using Microsoft Excel 2013 (version 16.0.13901.20400), pie and bar charts were made to show the distribution of the categorical variables.

Results

This survey shows that dyslipidemia is reported at 58.1% among diabetic patients, 38.4% among hypertension, and 3.5% among CKD patients (Figure 1). Among the participants, rosuvastatin is the preferred statin for 96.3% of patients with dyslipidemia, atorvastatin for 3.5% of patients and 0.2% of patients were put on other medicines (Figure 2). About 50.2% of clinicians reported an excellent review of the HOPE-3 trial outcomes, 42.8% reported very good, and 6.8% reported good. More than half of the clinicians (54.8%) agreed with the views on the HOPE-3 trial and 41.4% of them strongly agreed whereas only 3.3% reported neutral.

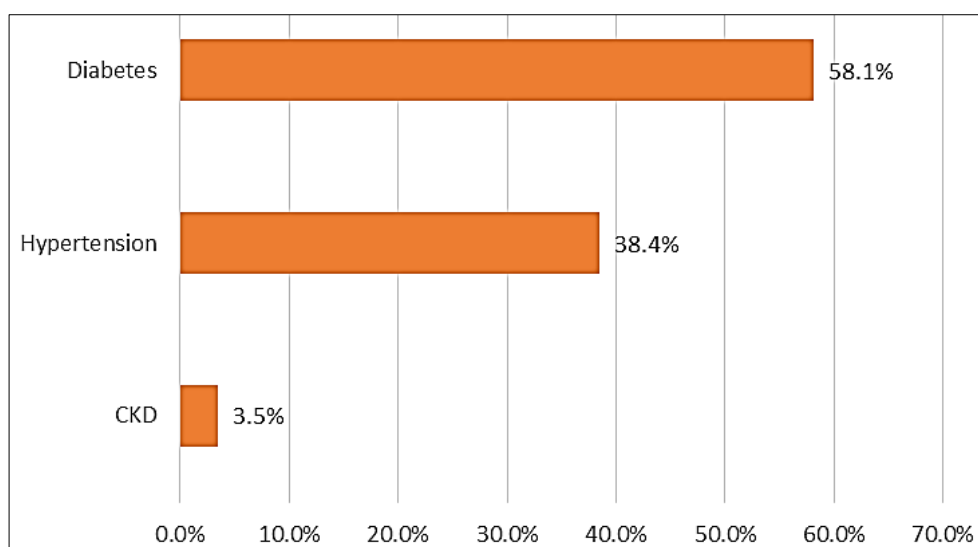


Fig 1: Prevalence of dyslipidemia in chronic disease patients

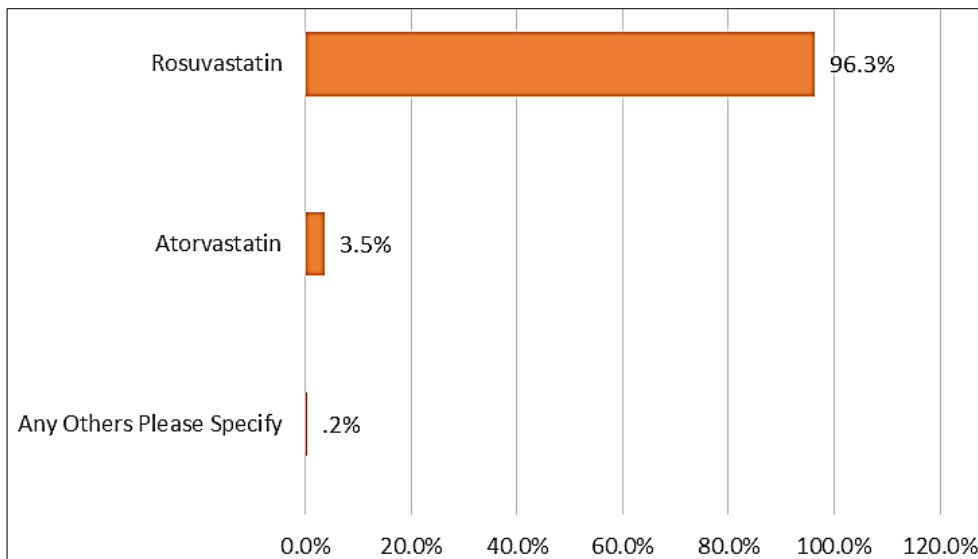


Fig 2: Statin commonly prescribed for patients with dyslipidemia

In this survey, 98.3% agreed with the guideline’s recommendation of low-to-moderate-dose statins in adults, 1.3% disagreed, and 0.2% people stood neutral. About 66.7% of clinicians preferred prescribing 10mg dose of rosuvastatin, 26.1% preferred 20mg, 3.7% preferred 40mg, and 3.5% preferred 5mg (Figure 3). Further, 38.2% of clinicians reported around 5-10 patients would require the combination of rosuvastatin and clopidogrel, 31.3% reported

10-15 patients, 18% reported 1-5 patients, and 12.5% reported more than 15 patients. After going through the options, 87.9% agreed on not any specific category of patients, 1.7% reported Coronary Artery Disease (CAD), and 1.5% reported Acute Coronary Syndrome (ACS). Through the survey, 68.9% of clinicians preferred 10mg Rosuvastatin+ 75mg Clopidogrel dosage, and the rest 31.1% preferred Rosuvastatin 20mg + Clopidogrel 75mg.

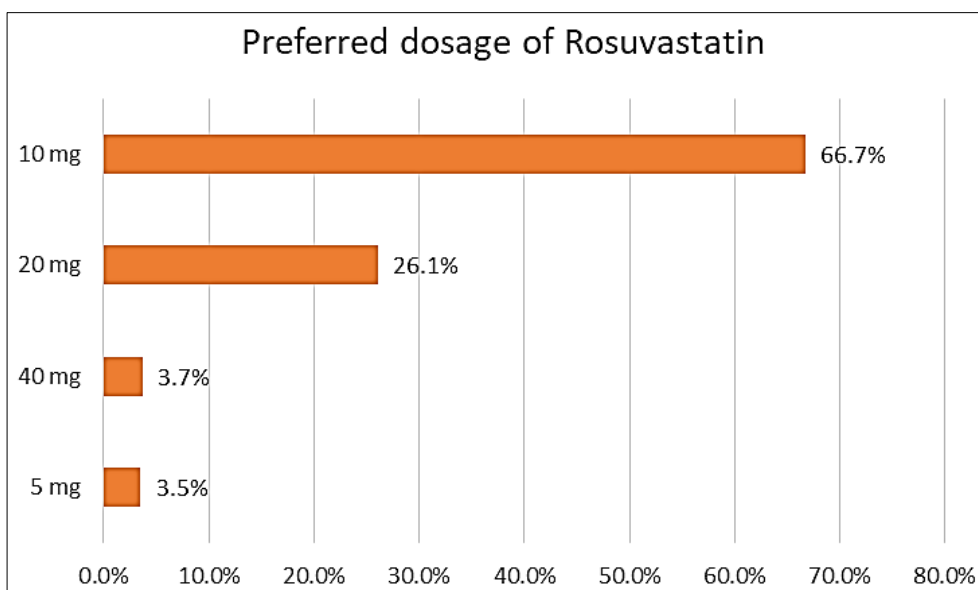


Fig 3: The preferred dosage of Rosuvastatin for Dyslipidemia among doctors.

In addition, 41.9% of clinicians reported that 11-25% of patients have attributable risk to ACS, 38.4% reported 26-50% of patients, 9.9% reported more than 50% of patients, and 9.7% reported less than 10% of patients. Also, 44.9% of clinicians reported seeing around 11-20 patients with dyslipidemia and ACS in a month, 27.4% reported 21-40 patients, 14.5% reported more than 40 patients, and 13.2% reported less than 10 cases. Over 44.1% of clinicians observed dyslipidemia and ACS commonly in adults of age group 41-50 years, 29.6% reported 51-60 years, 16.2% reported 31-40 years, and 3.7% reported 21-30 years. Moreover, 60.8% reported that dyslipidemia and ACS are

more common among patients with diabetes, 32.9% reported hypertension and 6.1% reported patients with CKD. Importantly, 55.1% reported recommending a lipid profile once in 3 months, 41.4% reported once in 6 months, and 3.3% reported recommending it once yearly (Figure 4). About 75.7% of clinicians initiate statin in all comorbid patients (diabetes, hypertension and other diseases), 16.5% reported recommending only high CV risk patients, and 7.7% reported recommending only in elderly CV risk. Through the survey, 89.2% did not feel pill burden and poor compliance as a big challenge in managing while 10.8% do.

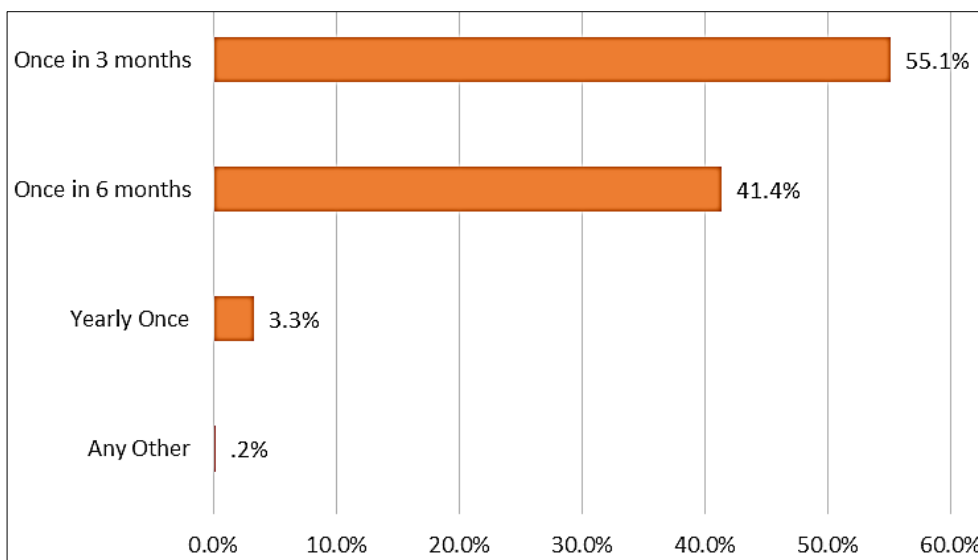


Fig 4: Preferred duration for lipid profile measurement

Furthermore, 57.5% preferred rosuvastatin + clopidogrel combination, 42.1% preferred rosuvastatin + aspirin, and 0.4% reported other drugs. Nearly half of them reported 11-25% of their patients require the rosuvastatin + clopidogrel + aspirin combination, 28.1% reported 26-50%, 16.9% reported less than 10%, and 6.8% reported more than 50% patients. About 53.3% reported an improvement in overall outcomes by the combination of statin and dual antiplatelet therapy, 33.5% reported improved adherence to treatment, and 12.3% reported a decreased pill burden. About 86.8% of the clinicians didn't agree with prescribing the combination to any particular segment of patients, while 2.2% reported CAD patients.

In this study, 40.3% reported the duration of therapy lasting around 6-12 months in high CV risk patients, 23.5% reported 3-6 months, 21.9% reported 1-2 years, and 14.3% reported more than 2 years (Figure 5). Over 82% of the doctors preferred fenofibrate + rosuvastatin prescription for patients with high triglycerides, 10.8% preferred rosuvastatin + ezetimibe, and 6.6% preferred high dose of rosuvastatin only. Notably, 56.3% reported preferring bempedoic acid 180mg + rosuvastatin 10mg tablets, 25.2% reported bempedoic acid 180mg + rosuvastatin 20mg tablets, and 14.3% preferred bempedoic acid 180mg + rosuvastatin 40mg tablets.

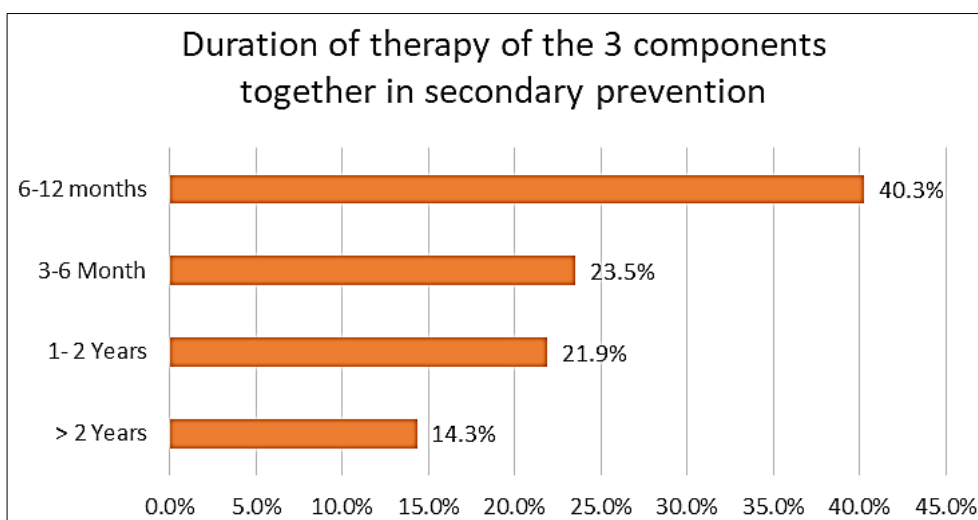


Fig 5: Duration of therapy of rosuvastatin + clopidogrel + aspirin in secondary prevention in high CV risk patients

Discussion

The present study aims to examine the prevalence, symptoms, causes, clinical characteristics, management of dyslipidemia, and the usage of rosuvastatin therapy in clinical practice shows that dyslipidemia is more commonly reported among diabetic patients. Increased insulin resistance in diabetes would increase the levels of free fatty acids (FFAs) delivered to the liver, giving rise to overproduction of very low-density lipoprotein (VLDL) and to increased very low-density lipoprotein cholesterol (VLDL-C) concentration, with the clinical manifestation of

hypertriglyceridemia. This in turn raises cardiovascular risk and mortality in diabetic patients. This survey shows that a 10 mg dose of rosuvastatin is the preferred statin for patients with dyslipidemia when compared with other medicines. This finding is consistent with the previously reported studies [9, 10] that rosuvastatin at its lowest dose in this study (10 mg) was more effective at reducing LDL-C levels. Similarly, 50.2% of clinicians reported excellent reviews and 54.8% agreed on the results of the HOPE-3 trial on Rosuvastatin [11].

In this survey, 98.3% agreed with the guideline's recommendation of low-to-moderate-dose statins in adults, which correlates with Sarraju A *et al.* that shows low- or moderate-intensity statins (rather than high-intensity) were associated with the greatest LDL-C reduction [12]. About 38.2% of doctors who participated in this survey reported around 5-10 cases would require the combination of rosuvastatin and clopidogrel, 31.3% reported 10-15 cases, mostly not for any specific category of patients, and the preferred combination dose is 10mg rosuvastatin + 75mg clopidogrel. These findings support various study reports that show rosuvastatin combined with clopidogrel effectively improved cardiac function, and reduced blood lipids, with high safety profile and good therapeutic efficacy [13, 14].

In this survey, only 41.9% of doctors reported 11-25% of patients have attributable risk to acute coronary syndrome (ACS), and commonly seeing around 11-20 cases of dyslipidemia and ACS in a month, mostly in the age group 41-50 years. Sanjay Fotedar *et al.* reported that dyslipidemia does not play any significant role in influencing the extent of CAD and has little effect on outcome in the early stage or after follow-up [15]. At the same time, 60.8% reported that dyslipidemia and ACS are more common among patients with diabetes. This finding correlates with the study finding that shows dyslipidemia along with diabetes and hypertension contribute to acute coronary syndrome (ACS) in middle-aged and elderly patients [16]. In this survey, 55.1% of clinicians recommended taking lipid profile once in 3 months, 41.4% once in 6 months, and 3.3% recommended it once yearly. Previous study findings show there is no proper evidence to inform the optimal frequency of lipid testing. Low-low, low, intermediate, and high risk are being tested once every 4.4, 1.9, 1.4, and 1.0 times per year, respectively [17].

Through this survey, 75.7% of clinicians preferred to initiate statin in all comorbid patients. Consideration to use statin in these populations can also be found in other organizations' guidelines and management resources of these conditions [18]. Through the survey, 89.2% do not feel pill burden and poor compliance as a big challenge in managing dyslipidemia. A similar finding seen in previously reported studies [19]. But a recent study by Chantzaras A and Yfantopoulos J has shown that poor medication adherence has a detrimental impact on dyslipidemia management [20]. In this survey, 57.5% of clinicians preferred clopidogrel, and 42.1% preferred aspirin as a combination drug to act with rosuvastatin. The combination of rosuvastatin + clopidogrel + aspirin was required only for 11-25% of their patients.

Interestingly, 53.3% of clinicians reported an improvement in overall outcomes by the combination of statin and dual antiplatelet therapy. These findings correlate with the Hiremath *et al.* that shows combination therapy of aspirin, clopidogrel, and rosuvastatin was the most preferred choice of physicians in India for management of ACS [21]. About 86.8% did not agree with prescribing the combination to any segment of patients and 40.3% reported that the duration of therapy lasts around 6-12 months in high CV-risk patients. For patients with high triglycerides, 82% of clinicians surveyed preferred the fenofibrate + rosuvastatin combination. Generally, statins established as standard-of-care medication for dyslipidemia but in patients with mixed dyslipidemia experiencing the abnormal lipid triad,

rosuvastatin only becomes inadequate. In such cases, the combination therapy with fenofibrate has been proven beneficial, and well tolerated with a similar safety profile compared with statin monotherapy [22].

Many patients with dyslipidemia do not achieve optimal low-density lipoprotein cholesterol (LDL-C) levels with statins alone, or else some patients will be unable to tolerate statin therapy. In such situations, other drugs are used. Bempedoic acid is a newly introduced oral drug used as an adjuvant to maximally tolerated statin therapy to lower LDL-C levels [23]. Recent clinical trials have shown that bempedoic acid is well tolerated with statins [24]. Bempedoic acid is an important addition to the management of patients with less-than-optimal control of LDL-C. Even in this survey, 56.3% of clinicians preferred bempedoic acid 180mg + Rosuvastatin 10mg tablets for dyslipidemia patients.

Conclusion

The majority of clinicians identified diabetes as a common comorbidity associated with dyslipidemia. Rosuvastatin emerged as the preferred statin for dyslipidemia management, and the HOPE-3 trial received positive reviews. Additionally, most clinicians agreed with guidelines recommending the use of low-to-moderate-dose statins and recommended regular lipid profile measurements. Combining rosuvastatin with clopidogrel was a popular choice, especially for secondary prevention, and was considered to improve overall outcomes. This survey underscores the importance of tailored dyslipidemia management and highlights the significance of evidence-based approaches to reduce cardiovascular risks. Further research and collaboration among healthcare providers are essential to enhance dyslipidemia management and improve patient outcomes.

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