



Effectiveness of Fimasartan and Rosuvastatin Combination Treatment in Hypertensive Patients With Dyslipidemia

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ABSTRACT

Purpose: The goal of this study was to evaluate the concurrent control rate of hypertension and dyslipidemia by fimasartan and rosuvastatin in patients who were concomitantly prescribed both drugs.

Methods: : This single-center, cross-sectional study was conducted in 536 patients with hypertension and dyslipidemia who were taking fimasartan and rosuvastatin together for at least 12 weeks. Patients were enrolled from October 2016 to March 2018 at a tertiary hospital in the Republic of Korea. The primary end point was the concurrent control rate of blood pressure (<140/90 mm Hg) and LDL-C. As a secondary end point, the target blood pressure <130/80 mm Hg was adopted in all patients or in high-risk patients with atherosclerotic cardiovascular diseases. Target LDL-C and non-HDL-C levels followed the domestic guidelines. Correlation between blood pressure control and lipid profile was also evaluated. All parameters were assessed in a clinic by board-certified physicians.

Findings: Of the total 536 patients, 69% (n = 368) had very high (n = 308) or high (n = 60) cardiovascular risk, with an average age of 65 years; 57% were male. When the target blood pressure was set at 140/90 mm Hg, the proportion of patients meeting the targeting LDL-C level was 40.3% (95% CI, 36.2–44.5; $P < 0.001$). When applied to the revised blood pressure criteria targeting 130/80 mm Hg, the concurrent control rate dropped by one half

to 20.3% (95% CI, 17.2–24.0; $P < 0.001$). To apply the new blood pressure criteria, more intensive management is mandatory in patients with high or very high cardiovascular risk. There was no positive correlation between the controlled rate of hypertension and dyslipidemia.

Implications: Fimasartan and rosuvastatin were shown to have effects on target diseases, but there was no synergistic effect when administered in combination. The higher the cardiovascular risk of the patients, the lower the rate of concurrent control when fimasartan and rosuvastatin were administered simultaneously. More active treatment is therefore required in high-risk patients. (*Clin Ther.* 2020;42:1058–1066) © 2020 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Key words: angiotensin receptor blocker, fimasartan, hypertension, rosuvastatin.

INTRODUCTION

Cardiovascular disease is the leading cause of death worldwide, with 15.2 million deaths per year (as of

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2016), accounting for 27% of all deaths.¹ According to the Korean Heart Study (KHS), which has followed up 430,920 men and women in the Republic of Korea for ~15 years (1997–2011), cardiovascular disease has a mortality rate of ~16%.² Hypertension and dyslipidemia are the biggest risk factors for cardiovascular disease, and patients with hypertension are more likely to have dyslipidemia than normal blood pressure, and vice versa.^{3,4} This is presumably because both diseases induce endothelial damage, thereby accelerating the progress of atherosclerosis.⁵ The ICEBERG (Intensive/Initial Cardiovascular Examination regarding Blood Pressure levels, Evaluation of Risk Groups) study, which investigated the relation between dyslipidemia and other cardiovascular risk factors in patients with hypertension or stage 2 prehypertension, revealed the positive correlation between blood pressure and cholesterol level.⁶ Despite the importance of managing hypertension and dyslipidemia, few data exist on the concurrent control rate of these diseases. A previous report that investigated 2864 adults aged ≥ 20 years (52% women) indicated that the prevalence of both hypertension and dyslipidemia was 18%, and the successful control of both hypertension and dyslipidemia was achieved in only 9% of participants.⁷

The primary drug for dyslipidemia treatment is a statin, a 3-hydroxy-3-methylglutaryl-coenzyme A reductase inhibitor. Statins have long-term therapeutic benefits in reducing cardiovascular events and death, primarily by lowering cholesterol levels, but there is also growing interest in the additional effects of statins, such as lowering blood pressure.^{8–10} Although the supporting evidence is limited, a meta-analysis which included 20 studies showed that in patients with systolic blood pressure (SBP) levels >130 mm Hg, statins were shown to reduced blood pressure ~ 4.0 mm Hg.¹¹ A double-blind, randomized controlled study also showed the blood pressure-lowering effect of statins (SBP, 2.2 mm Hg reduction [$P = 0.02$]; diastolic blood pressure, 2.4 mm Hg reduction [$P < 0.001$]).¹² Indeed, combination treatment of an angiotensin II receptor antagonist with a statin is very common in clinical practice, and hence a combined formulation of these drug classes is widely used.

Given the close correlation between hypertension and dyslipidemia, as well as their targeting agents,

the present study included patients who were taking rosuvastatin for the treatment of dyslipidemia along with fimasartan for the treatment of hypertension and analyzed the concurrent control rate of the diseases.

PATIENTS AND METHODS

Patients

Patients with hypertension being prescribed fimasartan and rosuvastatin were screened and enrolled in the outpatient clinic of a tertiary hospital in the Republic of Korea from October 2016 to March 2018. Patients were considered eligible for enrollment if they met the following criteria: male or female adults aged >20 years who signed an informed consent form and had been treated with antihypertensive medication containing fimasartan for at least 12 weeks and had been treated with antidyplidemia medication containing rosuvastatin for at least 12 weeks. Blood pressure and lipid profiles of all patients enrolled in this study were acquired. Patients were excluded from this study if they were admitted at enrollment, had skipped fimasartan or rosuvastatin >14 days within 12 weeks before enrollment, had triglyceride levels >400 mg/dL, were included in another clinical trial, or were unsuitable for recruitment per the researcher's decision. Because FIMARO (Fimasartan and Rosuvastatin for Hypertension and Dyslipidemia Control) was a cross-sectional study, patients who withdrew their signed consent were excluded from the analysis.

Study Design

This was a single-center, noninterventional, cross-sectional study. The study was ended by collecting patients' clinical and laboratory parameters assessed at the time of each participant's enrollment. However, some patients' history and medical records were collected retrospectively. Fimasartan* is a non-peptide angiotensin II receptor antagonist used for the treatment of hypertension. It is marketed in the Republic of Korea and currently registered in 18 different countries. The present study aimed to evaluate a concurrent control rate of blood pressure and cholesterol level in patients taking fimasartan together with rosuvastatin. Patients with essential hypertension and dyslipidemia who were concurrently taking medications including fimasartan

and rosuvastatin were enrolled after signing an informed consent form. At the time of enrollment, demographic information, hypertensive disease characteristics, lipid profiles, and treatment characteristics were examined. The demographic information included sex, age, and body mass index. Clinical characteristics included history of diabetes mellitus, coronary artery disease, peripheral artery disease, and cerebrovascular accident.

The study drug was administered according to product labeling. The study doses of fimasartan administered were 15, 30, 60, and 120 mg; most patients were prescribed 30 or 60 mg. The study doses of rosuvastatin administered were 5, 10, and 20 mg; doses of 40 mg were not available at our institution. The primary end point was concurrent control rate of blood pressure and LDL-C levels. Target blood pressure was 140/90 mm Hg according to the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure.¹³

Blood pressure was measured twice from both arms at initial registration, and the arm measuring the higher SBP was used. When the SBPs of both arms were equal, the arm with the higher diastolic blood pressure was used. The mean value of 2 measurements was used. As a secondary end point, we also adopted the newly proposed 2018 American College of Cardiology/American Heart Association (ACC/AHA) hypertension guidelines suggesting a target blood pressure <130/80 mm Hg¹⁴ and domestic guidelines which suggest a target blood pressure <130/80 mm Hg only in patients at high risk for atherosclerotic cardiovascular diseases (ASCVDs).¹⁵ The target levels for LDL-C and non-HDL-C followed the domestic guidelines (see Supplemental Table I in the online version at doi:10.1016/j.clinthera.2020.03.019). Correlation between blood pressure control and lipid profile was also evaluated*. The institutional review board at Severance Cardiovascular Hospital was responsible for approval of the clinical study, which was conducted in accordance with ethical principles and the Guidelines of the Declaration of Helsinki and regulations and guidelines of Good Clinical Practice.

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Statistical Analysis

Treatment information regarding hypertension and dyslipidemia were coded by using the Anatomical Therapeutic Chemical classification system developed by the World Health Organization, and the total number and ratio were obtained. Descriptive statistics for the mean, SD, median, minimum, and maximum values are presented for continuous variables. Frequencies and percentages are presented for categorical variables. Continuous variables that were normally distributed are reported as mean (SD) and were compared by using Student *t* tests for parametric data and Mann–Whitney tests for nonparametric data. Categorical variables are reported as counts (percentages) and were compared by using χ^2 or Fisher exact tests. The significance level was 5% (two-sided), and SAS version 9.4 (SAS Institute, Inc, Cary, NC) was used for the analysis.

RESULTS

Baseline Characteristics

A total of 536 patients who were concomitantly prescribed fimasartan and rosuvastatin for the control of high blood pressure and dyslipidemia were enrolled during the 18-month follow-up period. The baseline demographic, clinical, and disease characteristics stratified according to ASCVD¹⁶ risk group are presented in Table I. Of these, 307 patients (57%) were male, and 368 patients (69%) met the criteria for very high risk or high risk of ASCVD. Although male sex was more prominent in the very-high-risk group (64% male vs 36% female), female sex was more prominent in the low-risk group (36% male vs 64% female). The mean age of patients were 65.4 (11.6) years, which was significantly higher in the very-high-risk group compared with the low-risk group. The prevalence of coronary artery disease (94%), peripheral artery disease (12%), and cerebrovascular accident (5.5%) was distinctly higher in patients at very high risk. We also noted that the prevalence of low HDL-C (<40 mg/dL) was >30% in patients at very high risk (32.1%) and patients at high risk (35.0%), whereas the incidence was 17.4% in the moderate-risk group. None of the patients with low risk had low HDL-C levels.

The mean duration since the initial diagnosis of hypertension was 9.8 (8.8) years; the duration was

Table I. Demographic characteristics.

Characteristic	Very High Risk (n = 308)	High Risk (n = 60)	Moderate Risk (n = 121)	Low Risk (n = 7)	Total (N = 536)
Male sex	197 (64%)	31 (52%)	62 (51%)	17 (36%)	307 (57%)
Age, mean (SD), y	67.8 (10.5)	66.6 (11.2)	62.6 (10.9)	55.0 (13.2)	65.4 (11.6)
Body mass index, mean (SD), kg/m ²	25.1 (3.2)	25.2 (3.1)	25.5 (3.4)	25.0 (4.0)	25.2 (3.3)
Hypertension	308 (100%)	60 (100%)	121 (100%)	47 (100%)	536 (100%)
Diabetes mellitus	104 (34%)	49 (82%)	0	0	153 (29%)
Low HDL (<40 mg/dL)	99 (32%)	21 (35%)	21 (17%)	0	141 (26%)
Cerebrovascular accident	17 (5.5%)	0	0	0	17 (3.2%)
Coronary artery disease	290 (94%)	0	0	0	290 (54%)
Peripheral artery disease	36 (12%)	0	0	0	36 (7%)

longer as the ASCVD risk increased (11.6 [9.1] years for very high risk, 9.4 [7.6] years for high risk, 7.6 [8.0] years for moderate risk, and 4.3 [6.1] years for low risk). Prescription information regarding antihypertensive agents including fimasartan is presented in Table II. Seventy-three (23.7%) very high risk patients were prescribed a combination formulation containing fimasartan with rosuvastatin, amlodipine, or diuretics. The mean duration of dyslipidemia since the initial diagnosis was 4.8 (5.3) years. Table III presents details on the prescribed duration of the fimasartan–rosuvastatin combination formulation since receipt of informed consent. In cases of single-agent rosuvastatin prescription, doses

of 5, 10, and 20 mg were prescribed for 54 patients, 299 patients, and 113 patients, respectively.

Concurrent Control Rate of Hypertension and Dyslipidemia

Initially, we set the target blood pressure as 140/90 mm Hg. The patients who satisfied both the target blood pressure (<140/90 mm Hg) and the LDL-C level in the protocol comprised 40.3% (216 of 536 patients; 95% CI, 36.2–44.5; $P < 0.001$). The rate of satisfaction for both goals was lower as the ASCVD risk increased (see Supplemental Table II in the online version at doi:10.1016/j.clinthera.2020.03.019). We also evaluated the rate of satisfaction for

Table II. Patients treated with antihypertensive agents containing fimasartan.

Variable	Very High Risk (n = 308)	High Risk (n = 60)	Moderate Risk (n = 121)	Low Risk (n = 47)	Total (N = 536)
Single agent	237 (77.0%)	43 (71.7%)	83 (68.6%)	23 (49.0%)	384 (71.6%)
Combined agent	73 (23.7%)	17 (28.3%)	38 (31.4%)	24 (51.1%)	152 (28.4%)
Rosuvastatin	38 (52.1%)	8 (47.1%)	25 (65.8%)	14 (58.3%)	85 (55.9%)
Amlodipine	16 (21.9%)	8 (47.1%)	9 (23.7%)	9 (37.5%)	42 (27.6%)
Diuretics	19 (26.0%)	1 (5.9%)	4 (10.5%)	1 (4.2%)	25 (16.4%)
Dosage					
15 mg	9 (2.9%)	0	0	0	9 (1.7%)
30 mg	107 (34.7%)	20 (33.3%)	52 (43.0%)	13 (27.7%)	192 (35.8%)
60 mg	164 (53.2%)	32 (53.3%)	60 (49.6%)	30 (63.8%)	286 (53.4%)
120 mg	28 (9.1%)	8 (13.3%)	9 (7.4%)	4 (8.5%)	49 (9.1%)

Table III. Duration of treatment with a combination of fimasartan and rosuvastatin.

Variable	Very High Risk (n = 38)	High Risk (n = 8)	Moderate Risk (n = 25)	Low Risk (n = 14)	Total (N = 85)
Treatment duration, d					
Mean (SD)	162.5 (90.9)	167.0 (135.3)	124.6 (40.6)	116.6 (49.1)	144.2 (80.3)
Median	165.5	105.5	99	109.5	118
Min–max	57.0–554.0	85.0–486.0	85.0–204.0	29.0–234.0	29.0–554.0
Concomitant prescription					
Ezetimibe	4 (10.5%)	2 (25.0%)	1 (4.0%)	1 (7.1%)	8 (9.4%)
Nicotinic acid	0	0	0	0	0
Omega-3 fatty acid	0	0	0	0	0

Min–max = minimum–maximum.

both goals according to the revised diagnostic criteria of hypertension (see [Supplemental Table III](#) in the online version at doi:10.1016/j.clinthera.2020.03.019), which also showed an inverse correlation between concurrent control rate and ASCVD risk. Indeed, concurrent control for hypertension and dyslipidemia was 20.3% (95% CI, 17.2–24.0; $P = 0.009$) when applying the ACC/AHA hypertension guidelines published in 2018 (<130/80 mm Hg); that is, about one half of the patients who met the protocol's target blood pressure (<140/90 mm Hg) did not reach a revised, more strict target blood pressure (<130/80 mm Hg) ([Fig. 1](#)).¹⁴ For

control of blood pressure and LCL-C level, Cohen's kappa coefficient was 0.03, suggesting that there was no significant correlation between the 2 parameters.

Control of Blood Pressure

The percentage of patients who reached the target blood pressure (<140/90 mm Hg) of the original protocol was 54.1% (290 of 536; 95% CI, 49.9–58.3; $P = 0.006$). There was no significant difference in blood pressure control between subgroups of cardiovascular risk ($P = 0.9$) (see [Supplemental Table IV](#) in the online version at doi:10.1016/j.clinthera.2020.03.019). Similarly, even

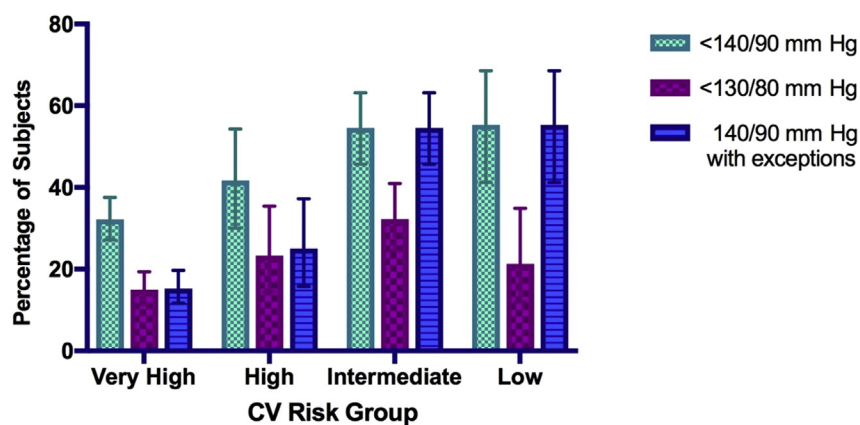


Figure 1. Percentage of patients reaching target blood pressure and LDL-C level. CV = cardiovascular.

if the revised ACC/AHA guidelines for hypertension were applied in 2017, there was no significant difference in blood pressure control among the subgroups of cardiovascular risk profiles. However, when we applied the domestic guidelines for hypertension, which suggests a target of <140/90 mm Hg in the general population and a more strict target (<130/80 mm Hg) in high- or very-high-risk groups, there was a significant difference in blood pressure control rate between the groups (Fig. 2). This difference was derived from the lower blood pressure control rate of the high-risk and very-high-risk groups. Multivariate logistic regression analysis revealed that blood pressure before the prescription of fimasartan was significantly related to successful blood pressure control (odds ratio, 0.99; 95% CI, 0.98–0.99; $P = 0.008$).

Control of Dyslipidemia

The overall percentage of patients meeting the LDL-C target level was 75.4%, which was significantly different for the subgroups according to cardiovascular risk ($P < 0.0001$). In the low-risk group, the LDL-C level remained at the target level for 100% of the patients, whereas the LDL-C regulation rate decreased as the risk increased, which was only 60.7% for the high-risk group (see Supplemental Table V in the online version at doi:10.1016/j.clinthera.2020.03.019). The control rate for non-HDL-C was also similar to LDL-C control

(Fig. 3). The percentage of patients who met the non-HDL-C target level was 76.9% (95% CI, 73.1–80.2; $P < 0.001$), and the results were significantly different among the subgroups according to the cardiovascular risk ($P < 0.001$) (see Supplemental Table VI in the online version at doi:10.1016/j.clinthera.2020.03.019). Multivariate logistic regression analysis revealed that high ASCVD risk (compared with low risk; odds ratio, 0.1; 95% CI, 0.02–0.19; $P < 0.001$) and diabetes mellitus (odds ratio, 3.6; 95% CI, 2.0–6.4; $P < 0.001$) were significantly related to a poor LDL-C control rate.

DISCUSSION

Disease control rates for hypertension and dyslipidemia were analyzed from 536 eligible patients who were taking fimasartan and rosuvastatin for at least 12 weeks among those who visited a general hospital in the Republic of Korea ~1.5 years ago. The percentage of patients who met both the target blood pressure (<140/90 mm Hg) and LDL-C level was 40.3% (95% CI, 36.2–44.5; $P < 0.001$). The concurrent control rate was lower in groups at high ASCVD risk; this group was older and had a higher prevalence of male patients.

In a previous randomized controlled trial, the concurrent control rate of hypertension and dyslipidemia in patients simultaneously taking fimasartan and rosuvastatin was 56.5%,¹⁷ reflecting the difference in study design. An analysis for a large-

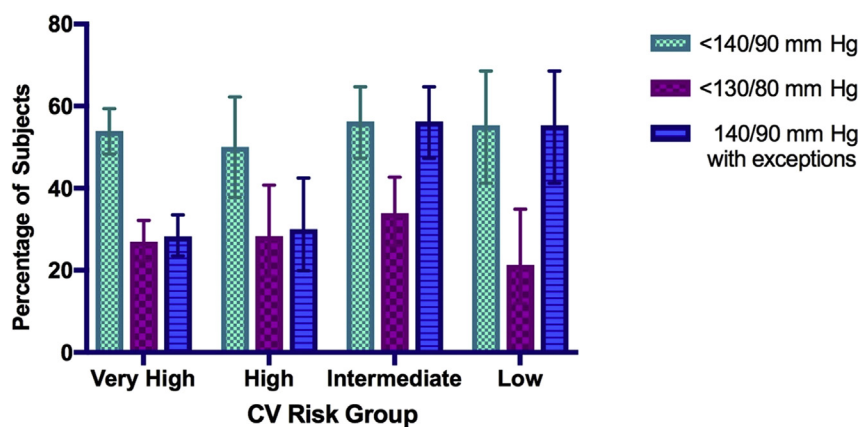


Figure 2. Percentage of patients reaching target blood pressure. CV = cardiovascular.

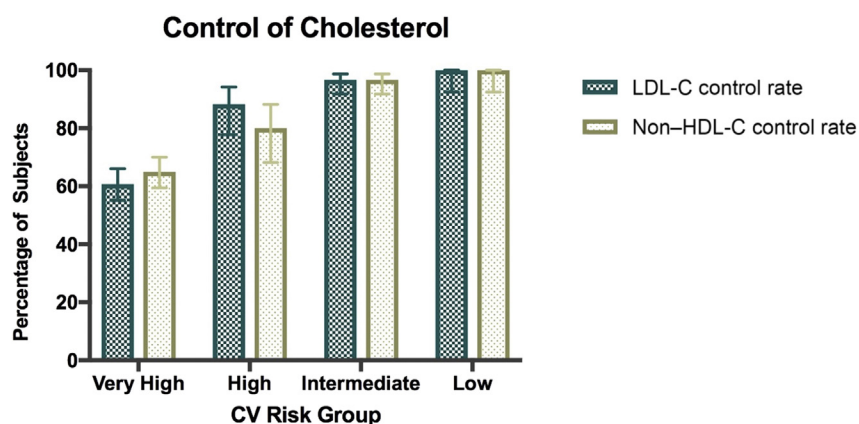


Figure 3. Percentage of patients reaching target LDL-C or non-HDL-C. CV = cardiovascular.

scale cohort database (National Health and Nutrition Examination Survey 1999–2012) found that the concurrent control rate of hypertension and dyslipidemia was 25%, which was much lower than our result.¹⁸ When target blood pressure was adjusted to 130/80 mm Hg according to recent guidelines,¹⁴ about one half of those who met the conventional target blood pressure (<140/90 mm Hg) did not meet the new criteria. However, this target blood pressure is based on research data that includes only about 2% of Asian subjects, and the body mass index of subjects included in the study was ~30 kg/m², which is far from the national average. Moreover, the study rarely included patients with diabetes, stroke, or heart failure, limiting the general application of the criteria to all the high-risk patients with hypertension.

The Korean Society of Hypertension suggests 140/90 mm Hg as a target blood pressure in the general population and 130/80 mm Hg only in high-risk patients, and 140/85 mm Hg in patients with diabetes.¹⁵ When applying these criteria, the concurrent control rate of hypertension and dyslipidemia in the high-risk and very-high-risk groups was 15.3% and 25.0%, respectively. This suggests that patients with various cardiovascular risk factors other than hypertension need more active treatment and management. We note that the prescription rate of the highest dose of fimasartan (120 mg) was low in very-high-risk or high-risk

patients, who require more stringent blood pressure control, leading to the low control rate of hypertension in these groups of patients. As a result, regardless of the cardiovascular risk, the control rate of blood pressure <140/90 mm Hg was similar. However, LDL-C levels were almost completely controlled in the low-risk and moderate-risk groups, while the levels in the high-risk and very-high-risk groups were 88.33% and 60.71%. Given the cross-sectional design of this study, it is difficult to judge from current data whether there is no sufficient treatment available to achieve the LDL-C target level in high-risk patients or the levels are still poor despite optimal medical treatment, implying the patient characteristics. There was no significant association between blood pressure and lipid profile. Given that drug compliance significantly affects clinical outcome, the control rate of disease according to the drug formula may be worth investigating in a separate study with more sufficient sample size.

We also note that the achievement of risk factor modification was much lower than expected in patients with high or very-high-risk factors, who require more stringent control of blood pressure and cholesterol levels. Given that the most recent guidelines suggest a lower cholesterol target (LDL-C reduction $\geq 50\%$ from baseline and LDL-C goal <55 mg/dL) than the existing target cholesterol level in high-risk patients,¹⁹ optimal medical therapy, including an adequate dose antihypertensive or

antidyslipidemic agent and a combination with ezetimibe or proprotein convertase subtilisin/kexin type 9 inhibitors, should be considered in patients with multiple cardiovascular risk factors.

This study has several limitations. First, the study patients were enrolled in a tertiary institute of >2000 beds, and thus it is difficult to assume that these patients represent general characteristics of hypertension and dyslipidemia. Second, if the LDL-C value by direct measurement was missing, it was replaced by using the Friedewald formula; it is necessary to take this into account in the analysis of results because the value of LDL-C calculated indirectly tends to be lower than that by direct measurement.²⁰ Finally, other kinds of antihypertensive agents included in combined agents could have affected the control rate of hypertension, and this factor should also be considered when interpreting our results.

CONCLUSIONS

We conducted a cross-sectional study in 536 patients with hypertension and dyslipidemia who were taking fimasartan and rosuvastatin together for at least 12 weeks. When the target blood pressure was set at 140/90 mm Hg, the proportion of patients meeting the target LDL-C level was 40.3% (95% CI, 36.2–44.5; $P < 0.001$), and the concurrent control rate dropped by one half to 20.3% (95% CI, 17.2–24.0; $P < 0.001$) when the revised blood pressure criteria targeting 130/80 mm Hg were applied. This finding suggests that a more stringent surveillance and treatment strategy is required for patients with hypertension and other risk factors such as dyslipidemia. There was no positive correlation between the controlled rate of hypertension and dyslipidemia.

DISCLOSURES

The authors have indicated that they have no conflicts of interest regarding the content of this article.

Boryung Pharmaceutical Co, Ltd was involved in all stages of the study conduct and analysis.

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design and data collection. C.Y. Shim, H.-J. Chang, C.-M. Ahn, J.-S. Kim, B.-K. Kim, S. Park, G.R. Hong, Y.-G. Ko participated in data interpretation. S.-J. Lee and D. Choi designed the study.

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SUPPLEMENTARY MATERIALS

Supplementary Table 1. Target Lipid (LDL-C, non-HDL-C) Level

ASCVD risk	LDL-C goal (md/dL)	Non-HDL-C goal md/dL
Very high risk	<70	<100
High risk	<100	<130
Moderate risk	<130	<160
Low risk	<160	<190

Supplementary Table 2. Number (%) of Subjects Reaching Target Blood Pressure (<140/90 mmHg) and LDL-C (<70/100/130/160 mg/dL)

	n (%)	95% C.I.	Total	P-value
Total	216 (40.3%)	(36.2,44.5)	536	.
Very high risk	99 (32.1%)	(27.2,37.6)	308	<0.0001†
High risk	25 (41.7%)	(30.1,54.3)	60	.
Moderate risk	66 (54.6%)	(45.7,63.1)	121	.
Low risk	26 (55.3%)	(41.3,68.6)	47	.

†: Pearson's chi-square test, ‡: Fisher's exact test.

Supplementary Table 3. Number (%) of Subjects Reaching Target Blood Pressure (<130/80 mmHg) and LDL-C (<70/100/130/160 mg/dL)

	n (%)	95% C.I.	Total	P-value
Total	109 (20.3%)	(17.2,24.0)	536	.
Very high risk	46 (14.9%)	(11.4,19.4)	308	0.001†
High risk	14 (23.3%)	(14.4,35.4)	60	.
Moderate risk	39 (32.2%)	(24.6,41.0)	121	.
Low risk	10 (21.3%)	(12.0,34.9)	47	.

†: Pearson's chi-square test, ‡: Fisher's exact test.

Supplementary Table 4. Number (%) of Subjects Reaching Target Blood Pressure (<140/90 mmHg)

	n (%)	95% C.I.	Total	P-value
Total	290 (54.1%)	(49.9,58.3)	536	.
Very high risk	166 (53.9%)	(48.3,59.4)	308	0.9†
High risk	30 (50.0%)	(37.7,62.3)	60	.
Moderate risk	68 (56.2%)	(47.3,64.7)	121	.
Low risk	26 (55.3%)	(41.3,68.6)	47	.

†: Pearson's chi-square test, ‡: Fisher's exact test.

Supplementary Table 5. Number (%) of Subjects Reaching Target LDL-C (<70/100/130/160 mg/dL)

	n (%)	95% C.I.	Total	P-value
Total	404 (75.4%)	(71.6,78.8)	536	.
Very high risk	187 (60.7%)	(55.26,66.0)	308	<0.0001†
High risk	53 (88.3%)	(77.8,94.2)	60	.
Moderate risk	117 (96.7%)	(91.8,98.7)	121	.
Low risk	47 (100.0%)	(92.4,100.0)	47	.

†: Pearson's chi-square test, ‡: Fisher's exact test.

Supplementary Table 6. Number (%) of Subjects Reaching Target non-HDL-C (<70/100/130/160 mg/dL)

	n (%)	95% C.I.	Total	P-value
Total	412 (76.9%)	(73.1,80.2)	536	.
Very high risk	200 (64.9%)	(59.5,70.1)	308	<0.0001†
High risk	48 (80.0%)	(68.2,88.2)	60	.
Moderate risk	117 (96.7%)	(91.8,98.7)	121	.
Low risk	47 (100.0%)	(92.4,100.0)	47	.

†: Pearson's chi-square test, ‡: Fisher's exact test.

