Adherence to triple component antihypertensive regimen is higher in single-pill combination than two-pill regimen: data from a randomized controlled trial using medication event monitoring system

Authors:
J Sung1, K T Ahn2, B R Cho3, S Y Lee4, B J Kim5, D K Kim6, J I Park7, W S Lee8, 1Samsung Medical Center, Sungkyunkwan University School of Medicine - Seoul - Korea (Republic of), 2Chungnam National University Hospital - Daejeon - Korea (Republic of), 3Kangwon National University Hospital - Choochon - Korea (Republic of), 4Ilsan Paik Hospital - Goyang - Korea (Republic of), 5Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine - Seoul - Korea (Republic of), 6Busan Paik Hospital - Busan - Korea (Republic of), 7VHS Medical Center - Seoul - Korea (Republic of), 8Chung-Ang University Hospital - Seoul - Korea (Republic of),

On behalf: AMTRAC investigator group

Topic(s):
Hypertension: Pharmacotherapy

Citation:

Funding Acknowledgements:
Daiichi-Sankyo

Background: Simplicity of regimen is known to be an important determinant of medication adherence and using single-pill combination (SPC) in hypertension treatment resulted in better adherence and persistence than free-equivalent combination. However, this finding has been studied only in dual-component antihypertensive treatments and in observational studies using medication possession ratio as an index of adherence. Medication event monitoring system (MEMS) is considered to be the gold standard in estimating medication adherence.

Purpose: To investigate the superiority in adherence of triple-component SPC compared to equivalent two-pill regimen using MEMS

Methods: This is a multi-center open-label randomized controlled trial. Inclusion criteria were hypertensive patients whose clinic blood pressure is not adequately controlled (systolic > 140 mmHg or diastolic > 90 mmHg) with combination antihypertensive regimen comprising two of three classes (angiotensin receptor blocker, calcium channel blocker and thiazide diuretics) for at least 4 weeks. Eligible patients were randomized either to single-pill (triple-component SPC, olmesartan/amlopidine/ hydrochlorothiazide 20/12.5/20 mg or two-pill (dual-component SPC + one free pill, olmesartan/hydrochlorothiazide 20/12.5 mg + amlopidine 5 mg) groups and maintained for 12 weeks. Medications were dispensed in MEMS. Primary outcomes were the difference of percentage of dose taken (PDT) and percentage of days with prescribed dose taken correctly (PDTc) between single- and two-pill therapy, calculated from MEMS data.

Results: From 8 hospitals, 146 hypertensive patients were randomized into single- and two-pill groups. Final analysis was done in 65 and 66 patients in each group from which adherence index could be obtained. Baseline clinical characteristics of the two groups were not different. The single-pill group had significantly higher PDT and PDTc compared to the two-pill group. (median (25-75 percentile) (%), PDT 95.1 (87.9 - 100.0) vs 91.2 (79.8 - 96.5); PDTc 93.1 (79.8 - 96.5) vs 91.3 (70.7 - 96.4), p = both 0.04, by Wilcoxon rank sum test)

Conclusion: Single-pill combination of triple-component antihypertensive regimen showed superior adherence compared to equivalent two-pill therapy. Reducing pill burden by using SPC is a relevant strategy to enhance the adherence to multi-drug antihypertensive therapy.
Adherence to triple component antihypertensive regimen is higher in single-pill combination than two-pill regimen: data from a randomized controlled trial using medication event monitoring system

Authors: J Sung 1, K T Ahn 2, B R Cho 3, S Y Lee 4, B J Kim 5, D K Kim 6, J I Park 7, W S Lee 8

1 Samsung Medical Center, Sungkyunkwan University School of Medicine – Seoul – Korea (Republic of), 2 Chungnam National University Hospital – Daejeon – Korea (Republic of), 3 Kangwon National University Hospital – Chooncheon – Korea (Republic of), 4 Ilsan Paik Hospital – Goyang – Korea (Republic of), 5 Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine – Seoul – Korea (Republic of), 6 Busan Paik Hospital – Busan – Korea (Republic of), 7 VHS Medical Center – Seoul – Korea (Republic of), 8 Chung-Ang University Hospital – Seoul – Korea (Republic of), On behalf: AMTRAC investigator group

Topic(s): Hypertension: Pharmacotherapy

Citation:

Funding Acknowledgements: Daiichi-Sankyo

Background: Simplicity of regimen is known to be an important determinant of medication adherence and using single-pill combination (SPC) in hypertension treatment resulted in better adherence and persistence than free-equivalent combination. However, this finding has been studied only in dual-component antihypertensive treatments and in observational studies using medication possession ratio as an index of adherence. Medication event monitoring system (MEMS) is considered to be the gold standard in estimating medication adherence.

Purpose: To investigate the superiority in adherence of triple-component SPC compared to equivalent two-pill regimen using MEMS

Methods: This is a multi-center open-label randomized controlled trial. Inclusion criteria were hypertensive patients whose clinic blood pressure is not adequately controlled (systolic > 140 mmHg or diastolic > 90 mmHg) with combination antihypertensive regimen comprising two of three classes (angiotensin receptor blocker, calcium channel blocker and thiazide diuretics) for at least 4 weeks. Eligible patients were randomized either to single-pill (triple-component SPC, olmesartan/amlodipine/hydrochlorothiazide 20/5/12.5 mg) or two-pill (dual-component SPC + one free pill, olmesartan/hydrochlorothiazide 20/12.5 mg + amlodipine 5 mg) groups and maintained for 12 weeks. Medications were dispensed in MEMS. Primary outcomes were the difference of percentage of dose taken (PDT) and percentage of days with prescribed dose taken correctly (PDTc) between single- and two-pill therapy, calculated from MEMS data.

Results: From 8 hospitals, 146 hypertensive patients were randomized into single- and two-pill groups. Final analysis was done in 65 and 66 patients in each group from which adherence index could be obtained. Baseline clinical characteristics of the two groups were not different. The single-pill group had significantly higher PDT and PDTc compared to the two-pill group. (median (25-75 percentile) (%), PDT 95.1 (87.9 – 100.0) vs 91.2 (79.8 – 96.5); PDTc 93.1 (79.8 – 96.5) vs 91.3 (70.7 – 96.4), p = both 0.04, by Wilcoxon rank sum test)

Conclusion: Single-pill combination of triple-component antihypertensive regimen showed superior adherence compared to equivalent two-pill therapy. Reducing pill burden by using SPC is a relevant strategy to enhance the adherence to multi-drug antihypertensive therapy.