EE222

Healthcare Costs Associated with Initial Combination Therapy Versus Monotherapy for Patients with Hypertension

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Background

- Clinical guidelines recommend initiating antihypertensive medication with combination therapy for most patients with hypertension.[1-2]
- These recommendations are based on benefits of a shorter time to achieve BP control and better medication adherence associated with initial combination therapy compared with monotherapy.[3]
- However, initiation of antihypertensive medication with combination therapy has not been widely adopted in US clinical practice.[4]
- Initiation of antihypertensive medication with combination therapy requires less treatment modifications[5] which may result in further benefits of lowering healthcare costs compared with monotherapy; however, the cost benefits associated with initial combination therapy have not been extensively studied.

Objective

- We compared direct medical costs for patients with hypertension who initiated antihypertensive medication with combination therapy versus monotherapy in a US integrated healthcare system.

Methods

- **Study design**: Retrospective cohort study using electronic health records.
- **Study population**: Adult Kaiser Permanente Southern California members with hypertension who initiated ACEI/thiazide diuretic combination, ACEI monotherapy, or thiazide diuretic monotherapy between 2008 and 2014.
- **Follow-up**: From medication initiation and up to three years
- **Outcomes**: Annual mean healthcare costs (2021 US dollars)
- **Statistical analysis**: Generalized linear models adjusted for patient and clinical characteristics using inverse probability of treatment weights in the two following comparisons
  1. ACEI/thiazide diuretic combination versus ACEI monotherapy
  2. ACEI/thiazide diuretic combination versus Thiazide diuretic monotherapy
- In secondary analyses, healthcare costs for different types of healthcare encounters (office visit, laboratory costs, hospitalization) for combination versus monotherapy were evaluated.

Results

- Of 117,949 patients, 47% initiated ACEI/thiazide combination therapy, 30% initiated ACEI monotherapy and 22% initiated thiazide diuretic monotherapy.
- Patients taking ACEI/thiazide combination therapy compared with ACEI monotherapy had similar total annual mean healthcare costs ($4,064 vs $4,196, respectively, p=0.06). (**Figure 1**)
- Patients taking ACEI/thiazide combination therapy compared with thiazide diuretic monotherapy had similar total annual mean costs ($3,650 vs $3,693, respectively, p=0.51). (**Figure 1**)
- Patients taking ACEI/thiazide combination therapy compared with ACEI monotherapy had lower office visit costs (-$18; p<0.01) and lower laboratory costs (-$10; p<0.01). (**Table 1**)
- Patients taking ACEI/thiazide combination therapy compared with thiazide diuretic monotherapy had lower office visit costs (-$28; p<0.01) and laboratory costs (-$16; p<0.01). (**Table 2**)

Figure 1. The Annual Mean Total Healthcare Costs (2021 US dollars) for Patients Initiating Combination Therapy versus Monotherapy

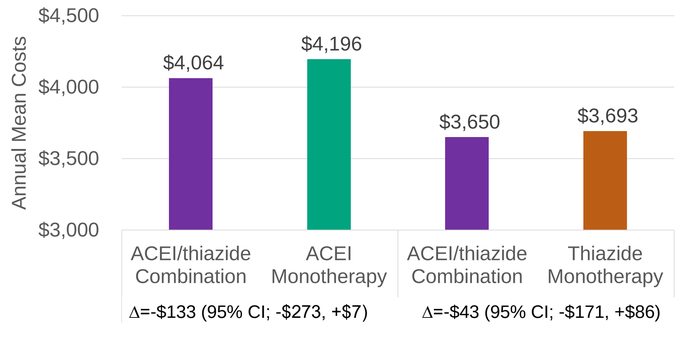

Table 1. The Annual Mean and Differences in Costs For Different Types of Healthcare Encounters for Patients Initiating ACEI/thiazide Combination versus ACEI Monotherapy

	ACEI/thiazide Combination Therapy	ACEI Monotherapy	Differences (95% CI)
Total	$4,064	$4,196	-$133 (-$273, +$7)
Office visit	$595	$613	**-$18 (-$27, -$9)**
Prescription	$1,349	$1,402	-$53 (-$106, $0)
Hospital stay	$1,303	$1,321	-$17 (-$130, +$95)
Other hospital	$270	$277	-$7 (-$15, +$2)
Laboratory	$379	$390	**-$10 (-$15, -$5)**
Emergency department	$73	$76	**-$4 (-$6, -$1)**
Other	$31	$35	-$4 (-$8, $0)

Table 2. The Annual Mean and Differences in Costs For Different Types of Healthcare Encounters for Patients Initiating ACEI/thiazide Combination versus Thiazide Monotherapy

	ACEI/thiazide Combination Therapy	Thiazide Monotherapy	Differences (95% CI)
Total	$3,650	$3,693	-$43 (-$171, +$86)
Office visit	$567	$595	**-$28 (-$37, -$19)**
Prescription	$1,127	$1,188	**-$61 (-$120, -$1)**
Hospital stay	$1,163	$1,077	$86 (-$10, +$182)
Other hospital	$262	$274	**-$12 (-$19, -$5)**
Laboratory	$362	$378	**-$16 (-$22, -$11)**
Emergency department	$69	$69	$0 (-$3, +$2)
Other	$26	$27	$0 (-$4, +$3)

Conclusion

- Compared with initiating monotherapy, initiating ACEI/thiazide diuretic combination therapy was associated with modestly lower office visit and laboratory costs.

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