Self-Reported Hypertension and the Likelihood of Aspirin Use and Associated Adverse Effects Among Adults Aged 18 Years and Older

Neto Coulibaly, MS[1]

INTRODUCTION

Available evidence suggests a possible increase in blood pressure (BP) and a blunting effect on antihypertensive medication linked to NSAIDs use.[1,2] However, uncertainties persist regarding similar effects with aspirin, a commonly used NSAID. Given the important role of low-dose aspirin in preventing adverse cardiovascular outcomes and the established link between high BP and cardiovascular risk, aspirin is widely used among individuals with hypertension.

Approximately 36% of adults aged 35 years and older in the United States, totaling 54 million individuals, incorporate daily or intermittent aspirin use into their routine. This includes 13.8 million of individuals with a cardiovascular disease history and 24.6 million of those diagnosed with hypertension.[3] However, there is a gap in evidence regarding the benefits and risks of aspirin use in individuals with hypertension.

Our study aims to explore the potential association between hypertension and adverse effects linked to the use of aspirin. Additionally, we will examine the relationship between hypertension awareness and aspirin use.

OBJECTIVE

- To describe and evaluate the relationship between self-reported hypertension and adverse effects linked to aspirin use.
- To describe and evaluate the relationship between hypertension awareness and aspirin use.

STUDY DESIGN

Data Source

- This retrospective cohort study analyzed a total of 59,374 adults from the 2019 Behavioral Risk Factor Surveillance System database.

Population

- 18 years or older.

Data Analysis

- Identified patients who answered to the following questions:
  a. *How often do you take aspirin?*
  b. *Have you ever been told by a doctor, nurse or other health professional that you have high blood pressure?*[6]

Model

- Multivariate logistic regression to test the association between high blood pressure and adverse effects from aspirin, as well as aspirin use.

FINDINGS

Table 1. Characteristics of BRFSS respondents.

	N	%
Aspirin Use		
Daily	14,846	25%
Some days	3,064	5%
Used to, side effects	1,804	3%
Does not take	39,660	67%
High blood pressure		
Yes	25,620	43%
No	33,754	57%
Antihypertensive Medication Use		
Yes	21,119	82%
No	4,448	17%
Age		
18-60	29,719	50%
60-80+	29,855	50%
Sex		
Male	26,521	45%
Female	32,853	55%
Race/Ethnicity		
White, non-Hispanic	47,447	80%
Black, non-Hispanic	4,235	7%
Other, non-Hispanic	2,814	5%
Hispanic	4,878	8%
Healthcare Coverage		
Private	9,394	39%
Medicare	10,450	43%
Medicaid	1,673	7%
Comorbidities		
Diabetes	8,669	15%
Kidney Disease	2,389	4%
Socioeconomic Factors		
Graduated HS or College	20,995	35%
Married	30,622	52%
Smoker	8,794	15%
< $50,000	24,354	41%

Table 2a. Contingency table of adverse effects from aspirin by high blood pressure status

	High Blood Pressure	
Aspirin Adverse Effects	*Yes*	*No*
Yes	1136 2%	668 1%
No	24484 41 %	33086 56 %
Total	25,620 **43%**	33,754 **57%**
χ^2=297.14	df=1	***p<0.0001***

Table 2b. Contingency table of aspirin use by high blood pressure status

	High Blood Pressure	
Aspirin Use	*Yes*	*No*
Yes	11869 20%	6041 10%
No	13751 23%	27713 47%
Total	25,620 **43%**	33,754 **57%**
χ^2=5587	df=1	***p<0.0001***

- P-value is less than the significance level of 5%.
- There is evidence of a significant relationship between high blood pressure and aspirin use and associated self-reported adverse effects.

Figure 1. Self-reported side effects from aspirin use by high blood pressure status

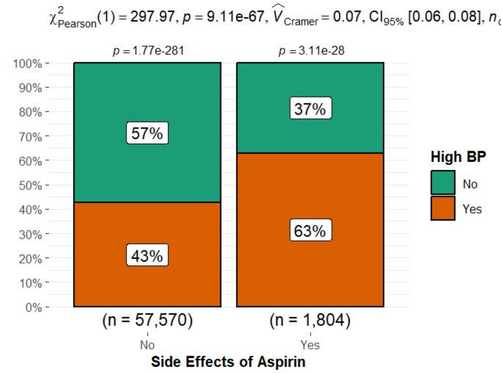

Table 3a. Association between self-reported high bp status and aspirin adverse effects (reference level = No aspirin side effects)

	Multivariate AOR[1]
High BP	1.67 (1.50-1.87)***

Table 3b. Association between self-reported high bp status and aspirin use (reference level = No aspirin use)

	Multivariate AOR[1]
High BP	2.14 (2.05-2.23)***

[1]Adjusted for race/ethnicity, age group, sex, education level, comorbidities (diabetes, kidney disease), income level, education, insurance.

DISCUSSION

- In our analysis, respondents with self-reported hypertension had higher adjusted odds (OR = 1.67, 95% CI = 1.50–1.87, p<0.001) of experiencing adverse effects from aspirin, and higher adjusted odds (OR = 2.14, 95% CI = 2.05–2.23, p<0.001) of using aspirin on a daily or frequent basis.

- Other predictors of adverse effects from aspirin were: being Black, smoking, having kidney disease, and having an income less than $35,000.

- Our findings underscore the potential relationship between hypertension and adverse effects associated with aspirin use. Further investigation is warranted to gain deeper insights into the underlying factors driving this identified relationship.

NEXT STEPS

- Investigate factors that may contribute to heightened adverse effects from aspirin use in individuals with hypertension.
- Expand research efforts by utilizing more comprehensive databases to delve deeper into this association.
- Explore potential interventions or modifications in aspirin usage to mitigate adverse effects among individuals with hypertension.
- Conduct longitudinal studies to assess the long-term impact of aspirin use on individuals with hypertension and their associated adverse effects.

SUMMARY

In a retrospective cohort study of 59,374 survey respondents, we investigated the relationship between self-reported hypertension, aspirin use, and associated adverse effects. Our study revealed a higher likelihood of both aspirin use and adverse effects among adults with hypertension. To gain a more comprehensive understanding of these relationships, additional studies are warranted. Evidence is also needed to determine whether the benefits of aspirin in individuals with hypertension outweigh the potential risks of adverse effects.

CONTACT

[1]Brown University School of Public Health
Email: neto_coulibaly@brown.edu
LinkedIn: Neto Coulibaly
Twitter: @NetoCoulibaly

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