

Does Aspirin Reduce Risk for Future Cardiovascular Events in Women with Diabetes?

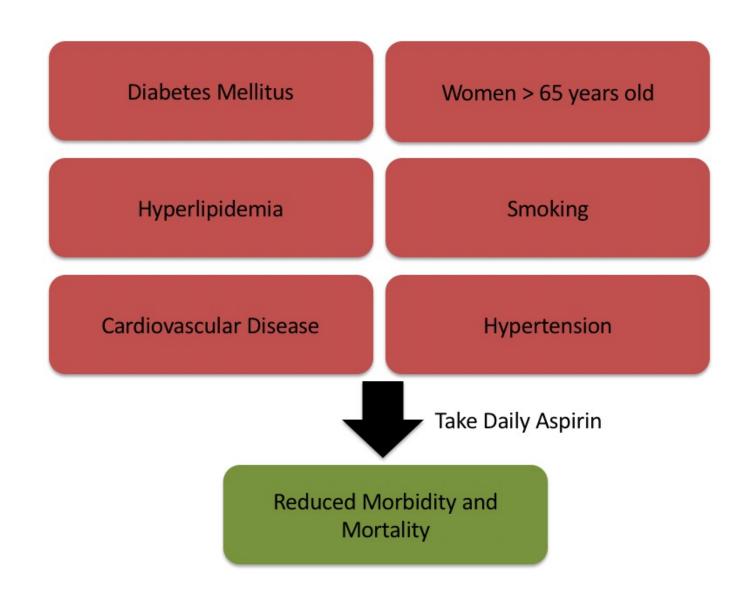
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Introduction

- Cardiovascular disease is the number one cause of mortality in the U.S.¹
- Low-dose aspirin (LDA) in primary prevention is no longer routinely recommended²
 - Lack of benefit in recent trials^{3,4,5}
 - Increased bleeding risk in almost all trials
- Subgroup analysis of aspirin's effects on women with cardiovascular risk factors has not been undertaken

Hypothesis: Women who are 65 years and older with cardiovascular risk factors will have reduced morbidity and mortality when taking daily aspirin



Aims and Objectives

Primary objective:

To assess if aspirin use decreases mortality and morbidity in women ≥65 years with Myocardial infarction (MI) and risk factors of hypertension, hyperlipidemia, smoking and positive family history of cardiovascular disease.

Secondary objective:

To assess if aspirin use and its effects in women ≥65 years with Myocardial infarction (MI) are associated with risk factors of hypertension, hyperlipidemia, smoking and positive family history of cardiovascular disease.

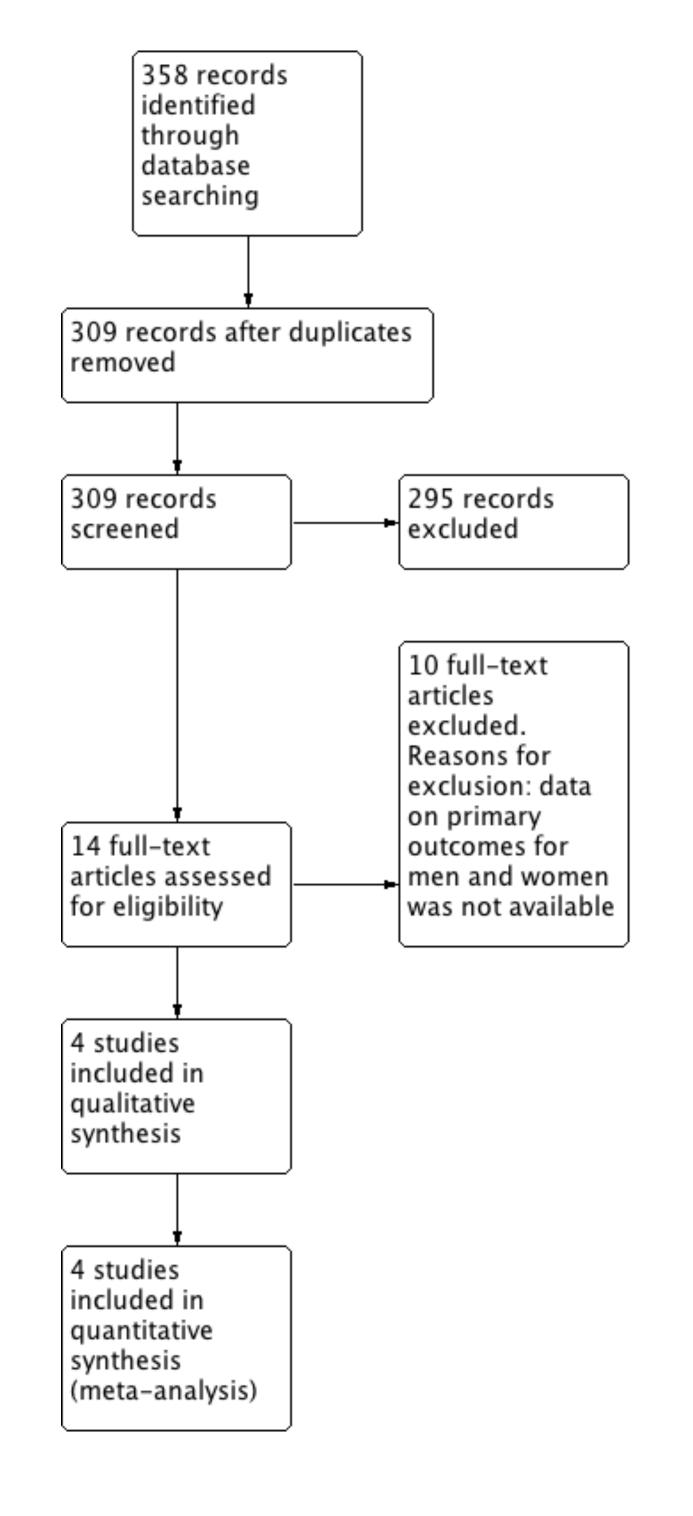
The results of this systematic review and meta-analysis will help us to formulate guidelines on the use of Aspirin in women ≥65 years with MI which will contribute toward decreasing mortality and morbidity in these women.

This study will also provide insight into the association of Aspirin with each of the risk factors of hypertension, hyperlipidemia, smoking and positive family history of cardiovascular disease.

Methods

- Retrospective systematic review and meta-analysis
- Literature review conducted using key words: "randomized controlled clinical trials," "aspirin," "primary prevention," "cardiovascular events," "males and females," "hypertension, hyperlipidemia, smoking and diabetes"
- Databases searched were Embase, Web of Science, Clinicaltrials.gov
- Data was analyzed on RevMan for men vs. women
- Random effects model implemented to deal with data heterogeneity

Figure 1: Flow diagram of the meta-analysis



Results

- Four studies included in analysis (AAA⁶, JPAD⁷, JPPP⁸ POPADAD⁹)
- Low risk of bias (Figure 2)
- Primary outcomes were assessed (risk of morbidity and mortality defined as death due to myocardial infarction or any cardiac event)
- The risk ratio in women versus men in aspirin group was 1.02 (95% CI: 0.65-1.60, p=0.93). (Figure 3)
- The risk ratio for in women versus men in placebo group was 1.09 (95% CI: 0.63-1.88, p=0.75). (Figure 4)
- Number of primary outcomes slightly lower among women taking aspirin, but not statistically significant

Figure 2: Risk of Bias Chart Random sequence generation (selection bias) Allocation concealment (selection bias) Blinding of participants and personnel (performance bias) Blinding of outcome assessment (detection bias) Incomplete outcome data (attrition bias) Selective reporting (reporting bias) Low risk of bias High risk of bias

Figure 3: Primary Outcomes in Women Versus Men in Aspirin Group

	Women		Me	Men		Risk Ratio	Ris	Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI		
AAA	85	931	96	2419	24.6%	2.30 [1.74, 3.05]		-	
JPAD	54	965	97	1195	23.9%	0.69 [0.50, 0.95]	-	•	
JPPP	94	8341	99	6123	24.7%	0.70 [0.53, 0.92]	-	-	
POPADAD	352	713	286	563	26.8%	0.97 [0.87, 1.09]		+	
Total (95% CI)	10950			10300	100.0%	1.02 [0.65, 1.60]		•	
Total events	585		578						
Heterogeneity: Tau2 =	0.20; Ch	$i^2 = 45$.	30, df =	3 (P < 0	.00001);	$I^2 = 93\%$	0.00	10 000	
Test for overall effect							0.01 0.1 Favors wome	1 10 100 en Favors men	

Figure 4: Primary Outcomes in Women Versus Men in Placebo Group

	Women		Men		Risk Ratio		Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI	
AAA	93	931	83	2419	24.6%	2.91 [2.19, 3.88]		
JPAD	65	965	101	1195	24.5%	0.80 [0.59, 1.08]	-	
JPPP	93	8341	114	6123	24.8%	0.60 [0.46, 0.79]	-	
POPADAD	361	713	277	563	26.1%	1.03 [0.92, 1.15]	†	
Total (95% CI)		10950		10300	100.0%	1.09 [0.63, 1.88]	•	
I otal events	612		5/5					
Heterogeneity: Tau2 =	0.29; Ch	$i^2 = 68.$	57, df =	3 (P < 0	.00001);	$I^2 = 96\%$		
Test for overall effect:							0.01 0.1 1 10 10 Favors Women Favors Men	

Conclusions

- Women over 65 years old with cardiovascular risk factors such as diabetes mellitus did not appear to benefit from low-dose ASA for primary prevention of future cardiovascular events
- Reasons for this may include widespread use of statins in the current era which lower the risk of a first cardiovascular event
- Further studies are needed in highest risk women to clarify the potential role of low-dose aspirin in primary prevention

Challenges/Solutions:

- Limitations: it was difficult to find more than four studies that met our literature search criteria
- Need for more data
- Interested to explore this topic more and conduct more indepth literature searches

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