Aspirin Use After Diagnosis Improves Survival in Older Adults With Colon Cancer

A Retrospective Cohort Study

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Abstract and Introduction

Objectives: To assess survival in relation to aspirin use after diagnosis in older adults with colon cancer.

Design: Subgroup analysis of a previously published cohort and retrospective study.

Setting: Individuals registered in the Eindhoven Cancer Registry (ECR) between 1998 and 2007, linked to prescriptions of low-dose aspirin (80 mg) registered in a community pharmacy database.

Participants: Five hundred thirty-six individuals aged 70 and older diagnosed with colon cancer with or without aspirin use after diagnosis.

Measurements: Survival was analyzed with user status as a time-dependent covariate. Multivariate Poisson regression survival models were used to study the effect of aspirin on overall survival.

Results: One hundred seven participants (20.0%) started aspirin after being diagnosed with colon cancer; 429 (80.0%) were not prescribed aspirin. Three hundred thirty-nine participants (63.2%) had died by the end of follow-up. Aspirin use after diagnosis was associated with longer overall survival (rate ratio (RR) = 0.51, 95% confidence interval (CI) = 0.38–0.70, \( P < .001 \)). Multivariate proportional hazards regression analysis revealed that aspirin use was associated with longer overall survival (adjusted RR = 0.59, 95% CI = 0.44–0.81, \( P = .001 \)).
Conclusion: Aspirin use after the diagnosis of colon cancer in older adults was associated with longer survival. Low-dose aspirin could be used as an effective adjuvant therapy in older adults with colon cancer.

Introduction

Nearly half of all individuals with colon cancer are aged 70 and older, and this age group is expanding as a result of increasing life expectancy.\[1\] Approximately 50% of all individuals undergoing colorectal cancer surgery relapse and die of metastatic disease.\[2-4\] The introduction of adjuvant chemotherapy has significantly improved the prognosis of individuals with colon cancer, but the effect of adjuvant chemotherapy in older adults is less clear. Some studies have suggested lack of survival benefit with adjuvant chemotherapy in individuals aged 65 and older,\[5\] although other studies have suggested that older adults derive benefit similar from chemotherapy but that they are less frequently treated.\[4,6\] Undertreatment of older adults with adjuvant chemotherapy often occurs because of comorbidities and individual preferences.\[7\] Because of underrepresentation in clinical trials, there is no treatment consensus for elderly adults with colon cancer.

Aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs) are effective in preventing colorectal cancer.\[8-10\] Aspirin inhibits cyclooxygenase-2 (COX-2), which is expressed in 70% of colorectal tumors and is greater with more-advanced disease stage.\[11,12\] COX-2 plays an important role in colorectal carcinogenesis, invasion, angiogenesis, and metastasis. Several studies have shown that selective COX-2 inhibitors can reverse this COX-2 effect.\[13\] It is not clear whether aspirin can influence the prognosis of individuals with colorectal cancer, but in animal models, aspirin and NSAIDs with activity against the COX-2 isoenzyme have been shown to inhibit tumor progression and increase survival.\[14\] Clinical studies have also shown an association between aspirin and prognosis. A recent study in individuals with Stage I to III colorectal cancer selected from two nationwide health professional cohorts in the United States showed that regular aspirin use after the diagnosis of colorectal cancer was associated with a lower risk of colorectal cancer–specific and overall mortality, especially in individuals with tumors that overexpress COX-2.\[11\]

The number of individuals with colon cancer is increasing, and there is a strong need for therapeutic improvement, especially in elderly adults, who are less frequently treated with standard chemotherapy. The aim of this study was to assess the association between aspirin use after the diagnosis of colon cancer and survival in individuals aged 70 and older.