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High Intermediate Risk (HIR) Features in Early Stage Endometrial Carcinoma (EC)

Zenebe Feleke*

Department of Cancer Biology and Genetics Program, Memorial Sloan-Kettering Cancer Center, New York, United States

Abstract

Statin usage has been shown to reduce the incidence and increase survival of gynecologic malignancies, although its effect on endometrial carcinoma (EC) is still unclear. Our main goal is to look at statin usage and its correlation with early-stage EC characteristics associated with high intermediate risk (HIR). Our hypothesis is that statin-taking women who have early-stage EC have less aggressive pathology at the time of hysterectomy. Our secondary goal is to find out whether using bisphosphonates, NSAIDs, and metformin concurrently may lower the chance of developing HIR early stage EC. These drugs all have anti-cancer properties.

Keywords: Endometrial cancer; Gynecologic cancer; Hypertension; Metabolic syndrome

Introduction

Although statins are a potent and often used class of cholesterol-lowering drugs, it is yet unknown how they can affect cancer risk. Statins work by inhibiting HMG-CoA reductase, which stops HMG-Coo from being converted to mevalonate and lowers levels of mevalonate and its byproducts [1]. Numerous of these products are essential for vital cellular activities, and statins' disruption of these processes in cancerous cells may prevent tumour start, development, and metastasis [1]. According to recent findings, people using statins to control their cholesterol have a lower incidence of cancer and that statins cause cell death in certain epithelial malignancies. This has been seen in a number of organs, including the breast, colon, lungs, and liver [1].

The risk of female reproductive organ cancer has been examined in seven observational studies to far. In their biggest cohort analysis, Yu et al. assessed 550 instances of gynecologic cancer and discovered that Statin users had a clinically meaningful, but not statistically significant, lower risk of endometrial cancer than non-users [2]. Results from a case control study of newly discovered gynecologic cancers were published. In 430 individuals, they discovered a substantial inverse relationship between the duration of statin usage and the risk of endometrial cancer as well as a considerably increased survival rate when statins were started just after the diagnosis [3].

Statins may reduce the chance of developing gynecologic malignancies and may have an impact on survival, even if their utility in the chemoprevention of gynecologic malignancy has not been shown [3]. Bisphosphonates [4], anti-hyperglycemic drugs [5], and anti-inflammatory drugs [6] have all been shown to enhance outcomes and act as chemo-preventative agents in a variety of tumour locations [7, 8]. All studies conducted to date have all participants with a diagnosis of gynecologic cancer without comparing clinico-pathologic variables that affect survival and recurrence rates. The impact of statin usage on the clinical and pathologic aspects of endometrial cancer that raise the likelihood of recurrence and necessitate adjuvant therapy has not yet been studied.

Materials and methods

Review of all patients who underwent hysterectomy for endometrial cancer at UC Davis Medical Center over a seven-year period was approved by the institutional review board. Less than two years of electronic medical data, non-endometrioid histology, or ambiguous pathology reports were disqualified from analysis. 400 FIGO Stage I EC were found after the identification of 764 patients and the evaluation of pathology data. Any high intermediate risk characteristic, such as Grade 2 or 3 histology, higher than 50% myoinvasion, or lymph vascular space invasion, was used to identify cases.

Results

We found 400 individuals with FIGO Stage I illness out of the 764 endometrial cancer patients who had hysterectomy with or without staging. Of the entire cohort, 114 (28.5%) were taking a statin at the time of diagnosis, and 75 (18.8%) had at least one high intermediate risk characteristic. Thirty-one percent of our patients had a BMI above 30, 74 percent were under 70, 21 percent had been diagnosed with diabetes, and 36 percent had been diagnosed with hypertension. Even after adjusting for patient age, parity, diabetes, obesity, hypertension, metformin usage, NSAID use, and bisphosphonate use, statin use at the time of hysterectomy was related with higher high risk characteristics (OR 2.4, 95 percent CI 1.3-4.3). Metformin usage was linked to more HIR characteristics, although the association was not statistically significant (OR 1.6, 95 percent CI 0.7-3.5). A protective impact against high-risk characteristics was suggested by concurrent NSAID and bisphosphonate use, however this was not significant. For both groups, the average follow-up period was 35 months. In the Statin users, the rate of patients who recurred was non-significantly higher (10.5 percent (12/114) vs 6.3 percent (18/286) in the non-users. (p=0.15) Statin users had a mean months to recurrence of 20.8 months compared to 28.1 months for non-users (p=0.26).

***Corresponding author:** Anadil Faqah, Consultant Hospitalist, Diplomate American Board of Internal Medicine, Shaukat Khanam Memorial Cancer Hospital, Johar Town, Lahore, Pakistan, E-mail: anadilfaqah@skm.org.pk

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Discussion

In our single institution retrospective case-control analysis, statin usage more than doubled the chance of FIGO stage I endometrioid endometrial cancer patients having high-risk characteristics at the time of hysterectomy. Additionally, statin users had an increased recurrence rate, which is consistent with a patient group at higher risk. We could have discovered a group of patients who are more likely to have a poor prognosis. Finasteride reduced the incidence of prostate cancer by 25%, according to the Prostate Cancer Prevention Experiment, a randomised placebo-controlled trial [9, 10]. However, the finasteride group had a higher incidence of high-grade prostate cancer (6.5 vs. 5.1%), with a relative risk of high-grade tumour of 1.67 [95 percent CI, 1.44 to 1.93]; P=0.005 [11]. The incidence of low-grade prostate cancer in males may be decreased because to the reduction in dihydrotestosterone associated with finasteride treatment. Their findings may indicate that androgen may not be necessary for the advancement of all high-grade prostate tumours.

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Conflict of Interest

Author declares no conflict of interest.

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