RISK OF ANAL CANCER IN INFLAMMATORY BOWEL DISEASE PATIENTS IN THE US: A POPULATION-BASED STUDY 2008-2018

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Introduction

- Patients with inflammatory bowel disease (**IBD**) are at **elevated risk** of developing **anal cancer**.
- It remains **unclear** whether the increased risk manifests from **immunosuppressant use or location** of the disease (inflammation).
- **Aim:** To examine whether the risk of anal cancer in IBD patients is attributable to immunosuppression or the disease's location by comparing IBD patients with rheumatoid arthritis (RA) and diverticulitis patients, respectively.

Methods

- Retrospective cohort study
- **Data:** US Optum® commercial claims database 2008-2018
- **Outcome:** The **risk of anal cancer** in the **IBD** cohort compared to the **RA** cohort (to examine risk attributable to immunosuppressant use) and the **diverticulitis** cohort (to examine risk attributable to similar disease location)
- Each disease cohort was identified using a combination of **ICD diagnosis** codes (9/10) and **prescription** drug use and **mutually exclusive**.
- **Inclusion criteria**: 18 years and older; persons with a minimum of 12 months of continuous insurance enrollment
- **Exclusion criteria**: persons with HIV/AIDS or organ transplant
- **Measure/Analysis**: Estimated adjusted hazard ratios (aHRs) using multivariable Cox proportional regression
- **Adjusting variables**: age at diagnosis, comorbidity, risk factors for HPV infection (smoking, obesity, genital wart, substance abuse, alcoholism), prescription drug use

Results

Men	IBD vs RA	IBD vs Divert.	Women	IBD vs RA	IBD vs Divert.
	aHR (95% CI)	aHR (95% CI)		aHR (95% CI)	aHR (95% CI)
IBD	6.78 (3.40-13.55)	2.68 (0.99-7.30)	IBD	2.70 (1.36-5.35)	0.70 (0.20-2.44)
Age at diagnosis (+1)	1.04 (1.03-1.06)	1.05 (1.04-1.07)	Age at diagnosis (+1)	1.04 (1.02-1.05)	1.04 (1.02-1.06)
Comorbidity score (+1)	0.89 (0.78-0.99)	0.95 (0.85-1.05)	Comorbidity score (+1)	0.96 (0.88-1.06)	0.91 (0.83-0.99)
Smoking	1.17 (0.52-2.63)	1.35 (0.64-2.83)	Smoking	1.23 (0.59-2.55)	1.88 (1.01-3.53)
Obesity	1.44 (0.70-2.95)	1.32 (0.67-2.59)	Obesity	0.67 (0.35-1.30)	0.55 (0.25-1.18)
Genital wart	12.11 (2.94-49.90)	13.05 (3.16-53.87)	Genital wart	13.40 (3.24-55.44)	7.14 (0.99-51.54)
Substance abuse	NA	NA	Substance abuse	1.96 (0.81-4.77)	1.63 (0.52-5.10)
Alcoholism	0.68 (0.10-4.43)	NA	Alcoholism	0.74 (0.10-5.66)	0.80 (0.10-6.29)
Corticosteroid use	1.90 (1.07-3.38)	2.09 (1.00-4.39)	Corticosteroid use	1.39 (0.89-2.18)	4.06 (1.26-13.07)
Immunosuppressant use	1.22 (0.72-2.06)	1.62 (0.87-3.02)	Immunosuppressant use	1.50 (0.99-2.26)	2.66 (1.35-5.23)
5-ASA use	1.04 (0.63-1.73)	1.20 (0.67-2.16)	5-ASA use	1.07 (0.60-1.93)	0.77 (0.41-1.48)
Anti-TNF use	1.83 (0.99-3.38)	2.81 (1.40-5.64)	Anti-TNF use	0.71 (0.34-1.47)	0.53 (0.12-2.37)
Other drugs use	2.09 (1.17-3.75)	2.00 (1.06-3.79)	Other drugs use	1.70 (0.96-3.02)	1.82 (0.83-3.96)

IBD, inflammatory bowel disease; RA, rheumatoid arthritis; divert., diverticulitis; aHR, adjusted hazard ratio; CI, confidence interval; NA, not applicable

- The study included 70 314 patients with IBD, 164 991 with RA, and 129 558 with diverticulitis.
- In **men**, the **adjusted hazard ratio** (aHR) of developing anal cancer was **6.78** (95% CI, 3.40-13.55) comparing **IBD to RA**, and was 2.68 (95% CI, 0.99-7.30) comparing IBD to diverticulitis.
- In **women**, the risk of developing anal cancer was **significantly higher in IBD compared to RA** (aHR **2.70**; 95% CI 1.36-5.35), but not different compared to diverticulitis (aHR 0.70; 95% CI 0.20-2.44).
- The **factors significantly associated** with a higher risk of anal cancer in both men and women were **age** at diagnosis, history of **genital wart**, and **corticosteroid** use.

Conclusions

- We found a significantly elevated risk of anal cancer in IBD patients than RA patients. However, anal cancer risk was not significantly different when comparing IBD patients to diverticulitis patients.
- These results indicate that the **location of the disease** is more strongly associated with anal cancer incidence than the treatment of autoimmune disease.
- Currently, **optimal surveillance** strategy is **unknown** for anal cancer prevention in **patients with intestinal inflammation.** Further dedication on developing and validating surveillance programs for those with intestinal inflammation, including **IBD patients**, is needed.

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