A Healthy Lifestyle Index is Associated with Reduced Risk of Colorectal Adenomatous Polyps among Non-Users of NSAIDs

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Background & Significance

- Colorectal cancer (CRC) is 3rd most commonly diagnosed cancer and 2nd leading cause of cancer death in the United States
- Adenomatous polyps (adenomas) are precursor lesions to CRC
- Smoking, alcohol intake, physical activity, diet and body mass index (BMI) are established risk factors for CRC
- These factors have mostly been studied independently
- A combined lifestyle index could be a practical tool for CRC prevention counselling

Purpose

- To develop a healthy lifestyle index from five modifiable lifestyle factors (smoking, alcohol intake, physical activity, diet, and body mass index)

- To examine the association of this lifestyle index with odds of colorectal adenoma

Methods

- Data from the Epigenetics and Diet in the Carcinogenesis Process (EDCaP) study (PIs: Dr. Susan Steck & Dr. James Burch)
- 138 men and women recruited from a local endoscopy center who completed questionnaires related to lifestyle behaviors prior to colonoscopy
- Responses scored on each of five lifestyle factors as unhealthy (0 point) or healthy (1 point) based on current evidence/recommendations
- The five scores summed to produce a combined lifestyle index for each participant ranging from 0 (least healthy) to 5 (healthiest)
- Index dichotomized into unhealthy (0-2) and healthy (3-5) lifestyle scores

Methods

- Cases had at least one incident, non-hereditary (sporadic) adenoma that was histologically confirmed by a pathologist
- Controls had a biopsy and were histologically confirmed as having hyperplastic polyps, or had no polyps detected during colonoscopy
- Logistic regression was used to calculate odds ratios (OR) and 95% confidence intervals (CI) for adenoma with adjustment for covariates
- Covariates: age, sex, educational status, race and reason for colonoscopy

Results

Table 1: Factors of the combined lifestyle score

Healthy lifestyle score factor	Score	Description	Percentage
Smoking	0	Former or Current smoker	53.6
	1	Never smoker	46.4
Alcohol use	0	High alcohol use: not conforming to recommended daily alcohol intake for the United States (>2drinks/day for males and >1drink/day for females)	17.4
	1	Limited alcohol use: Conforming to recommended intake levels (=<2drinks/day for males and =<1drink/day for females)	82.6
Physical activity (PA)	0	Not active/less active: <150 minutes/week of moderate intensity PA or <60 minutes/week of vigorous intensity PA	78.3
	1	Regularly active: >=150 minutes/week of moderate intensity PA or >=60 minutes/week of vigorous intensity PA	21.7
Diet quality[ǂ]	0	Unhealthy diet quality: low FV[¥] intake and high fat intake	52.9
	1	Healthy diet quality: high FV intake or low fat intake, or both	47.1
Body mass index	0	Overweight or obese: BMI>=25	81.9
	1	Normal weight: BMI 18 - <25	18.1

Results

- There were 47 adenoma cases and 91 controls
- In the main analyses, there was a statistically nonsignificant inverse association between the lifestyle index and odds of adenoma:
  - Dichotomous index (OR, 0.54; 95% CI, 0.22-1.29)
  - Continuous index (OR, 0.75, 95%CI 0.51-1.10)
- Odds of adenoma were significantly modified by NSAIDs use ($P_{interaction}$=0.047)

Results

Table 2: Odds ratios (95% confidence intervals) for categorical and continuous healthy lifestyle index stratified by NSAIDs use

		All participants		No NSAIDs use		NSAIDs use	
		OR*	95%CI	OR	95%CI	OR	95%CI
Dichotomous healthy lifestyle index	Unhealthy lifestyle score	1.00	referent	1.00	referent	1.00	referent
	Healthy lifestyle score	0.54	0.22-1.29	**0.28**	**0.08-0.98**	1.30	0.35-4.91
Continuous healthy lifestyle index		0.75	0.52-1.10	**0.47**	**0.26-0.88**	1.14	0.64-2.05

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Study Limitations

- Small sample size
- Data on lifestyle index factors as well as all other covariates were self-reported
- Cross-sectional design and included a large proportion of surveillance colonoscopies (69%) compared with screening colonoscopies (31%)

Conclusion

- Having a higher score from this index may reduce the odds of colorectal adenomas especially among nonusers of NSAIDs
- Findings should be interpreted cautiously given the small sample size
- Findings are consistent with other studies examining associations between combined lifestyle factors and colorectal adenoma/CRC

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