

# A Comparison of the Risk Factors and Clinical Manifestations of Barrett's Oesophagus in Young and Old People

Julia Bullock

Advent Health Family Medicine Rural Health Clinic, Killeen, Texas, USA

**\*Corresponding author**

Julia Bullock, Advent Health Family Medicine Rural Health Clinic, Killeen, Texas, USA.

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## ABSTRACT

**Introduction:** Ageing, being a man, being obese, and having chronic reflux symptoms are risk factors for Barrett's oesophagus (BE). This study's objective was to compare the risk variables and symptom presentations between young and older Chinese BE patients.

**Methods:** From December 2016 through May 2019, prospective data from the VGHTC were gathered. Data from instances that were younger than 60 years old and older than 60 years old were gathered and compared.

**Results:** The 67 subjects enrolled included 31 (46.3%) senior patients and 36 (53.7%) young patients. The majority of the BE individuals (63.6–77.4%) were male and had short-segment BE (94.4–93.5%). The prevalence of obesity, waist circumference, and BMI were comparable between the two groups. Hiatal hernia rates were non-significantly higher in the older cases (58.1% vs. 38.9%,  $P=0.117$ ). Dysplasia was present in two young (5.6%) and two older (6.5%) patients. Adenocarcinoma was present in one elderly patient (3.2%). Typical reflux symptoms were present in the majority of patients (58.1%–61.1%), and older patients were more likely to smoke than younger patients. Both groups' SF-12 results were comparable.

**Conclusion:** The presentations of young and old BE patients were comparable. More research is required.

**Keywords:** Manifestations, Barrett's esophagus, old patients

## Background

Intestinal metaplasia (IM) of the esophageal squamous epithelium is what is known as Barrett's oesophagus (BE), and its risk factors include growing older, being a man, being obese, and having long-term gastroesophageal reflux disease (GERD) [1]. According to population research, the prevalence of BE is 1–2%, however among people who have GERD symptoms, it can be anywhere between 10% and 18% [2,3]. Age and BE are known to be related, and older BE patients have been found to be more likely to be female than male in several studies [4–6]. However, some patients with BE present in clinical settings when they are still quite young. The purpose of this study was to compare the risk variables and symptom presentations between young and older Chinese BE patients.

## Methods

Data were prospectively gathered from participants with BE who went to the Taichung Veterans General Hospital's Medical Screening Centre between October 2012 and December 2014. Age, gender, body weight, body mass index (BMI), and waist circumference were recorded as general information on the patients who had been enrolled. According to AGA guidelines, a four-quadrant tissue biopsy was performed on each patient during an open-access transoral upper gastrointestinal (UGI)

endoscopy employing white light and high-resolution narrow band imaging (NBI) [7]. Using the standard IM pattern, BE was identified. Hiatal hernia, erosive esophagitis (EE), short segment BE (SSBE, extending 3 cm into the oesophagus) or long segment BE (LSBE, extending? 3 cm into the oesophagus), and pathologic dysplasia of BE tissue were among the endoscopic results that were gathered. The exclusion standards comprised total esophagectomy, significant cardiac impairment, cancer, or other medical problems that would make using a UGI scope impossible.

All of the recruited cases were required to complete the short form-12 (SF-12) questionnaire, which contained questions regarding dietary preferences, reflux symptoms, and general quality of life. The lifestyle practises included smoking cigarettes, drinking alcohol, drinking tea, and drinking coffee. Reflux symptoms might include both conventional symptoms like acid reflux or heartburn and unusual symptoms like sore throat, lumps in the throat, or persistent cough. Patients in this study were considered to be positive for the aforementioned symptoms if they occurred three or more times per week or more often. Twelve items from the SF36 Health Survey were chosen for the multipurpose SF12 short-form survey. It assesses a patient's wellbeing-related a measure of life satisfaction based on one's own self-reported levels of physical and mental health. Patients were split into two age groups based on their

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chronological age: those under 60 and those 60 and over. We contrasted the traits of the two groups.

For each of the measured parameters, data are expressed as the standard deviation of the mean. Each stratified group's gender and positive rate are reported as a percentage of all patients. The Pearson's chi-square test was used to compare statistically the impact of gender and the positive rate of each stratified group. Waist circumference, body mass index, and body weight were examined using an independent t test. Statistical significance was defined as a p-value 0.05.

**Results**

The average age of the 67 participants in our study was 59.68 15.19 years. There were 31 patients (46.3%) in the senior group and 36 (53.7%) in the young group. Table 1 displays the broad statistics. The average ages of the young and old groups were, respectively, 52.97 and 77.52 years old. In both categories, men outnumbered women (63.6% vs. 77.4%, P=0.228). The waist circumference in the two groups was identical (88.54 vs. 89.17 cm, P=0.344), as was the BMI (24.98 vs. 24.21 kg/m<sup>2</sup>) and the prevalence of obesity (BMI>24 kg/m<sup>2</sup>) (52.8% vs. 58.1%, P=0.822).

**Table 1: General Information on the Young and Old Population**

Table1	Young group (N=36)				Elderly group (N=31)				P-value	
	M	± SD	N	%	M	±SD	N	%		
Age (years)	52.97	± 9.09	23	-63.90%	77.52	±6.21	24	-77.40%	0.001 <sup>a</sup>	
		±9.99								±9.59
		±13.48								±10.79
		±4.54								±3.68
Gender (male)									0.228 <sup>b</sup>	
Waist (cm)	87.67				89.31				0.344 <sup>a</sup>	
BW (kg)	68.31				63.11				0.089 <sup>a</sup>	
BMI (kg/m <sup>2</sup> )	24.98				24.41				0.576 <sup>a</sup>	
Obesity*			19	-52.80%			18	-58.10%	0.822 <sup>b</sup>	

Table 2 shows the endoscopic and pathologic characteristics of BE in the two groups. The majority of participants who were enrolled had SSBE (94.4% vs. 93.5%, P=1.000). The two groups' EE rates were comparable (33.3% vs. 32.3%, P=0.593). The prevalence of hiatal hernia was non-significantly higher in the senior group of individuals than in the younger group (58.1% vs. 38.9%, P=0.117). Regarding the pathologic findings of BE, lower grade dysplasia (LGD) was present in two young individuals (5.6%) and two older patients (6.5%). 3.2% of the aged population had adenocarcinoma. All of these variations lacked significance.

**Table 2: The endoscopic and pathologic appearance of the young and elderly group**

Table 2	Young (N=36)		Elderly (N=31)		P-value
	N	%	N	%	
BE length					1
SSBE	34	-94.40%	29	-93.50%	
LSBE	2	-5.60%	2	-6.50%	
Hiatal hernia	14	-38.90%	18	-58.10%	0.117
Erosive esophagitis					0.593
Nil	24	-66.70%	21	-67.70%	
LA Gr. A/B	12	-33.30%	8	-25.90%	
LA Gr. C/D	0		2	-6.40%	
Pathologic findings					1
Non-dysplasia	34	-94.40%	28	-90.30%	
Dysplasia	2	-5.60%	2	-6.50%	
Adenocarcinoma	0		1	-3.20%	

Table 3 provides a list of the numbers of positive reflux symptoms. Twenty young subjects (55.6%) and sixteen elderly subjects (51.6%) suffered acid regurgitation, while 11 young cases (30.6%) and nine elderly patients (19.4%) experienced heartburn. In the young group, 14 patients (38.9%), and in the senior group, 13 patients (41.9%), there were no typical reflux symptoms. Although these differences did not achieve statistical significance, there were higher prevalence rates of sore throat (27.8% vs. 16.1%) and lump sensation (55.6% vs. 32.3%) among young patients than among senior patients in instances with atypical reflux symptoms.

Table 3 also displays the patients' lifestyle behaviours, such as their intake of alcohol, tea, coffee, and cigarettes. When compared to younger patients, older patients had a considerably greater smoking prevalence (58.1% vs. 30.6%, P=0.023). Other lifestyle behaviours across the two groups showed no discernible changes.

Table 5 lists the quality of life scores as determined by the SF-12. Young and elderly patients received physical component summary (PCS) ratings of 43.9110.08 and 44.428.98, respectively. The mental component summary (MCS) scores for young and old participants, respectively, were 45.6010.79 and 45.5910.25. There was no statistically significant difference between the two groups (PCS, P=0.757; MCS, P=0.996).

**Table 3: The onset of reflux symptoms and the lifestyle choices of young and old people**

Table 3	Young (N=36)		Elderly (N=31)		P-value
	N	%	N	%	
Typical reflux syndromes					
Acid regurgitation	20	-55.60%	16	-51.60%	0.747
Heartburn	11	-30.60%	6	-19.40%	0.293
Acid regurgitation or heartburn	22	-61.10%	18	-58.10%	0.8
Nil	14	-38.90%	13	-41.90%	
Atypical reflux syndromes					
Sorethroat	10	-27.80%	5	-16.10%	0.254
Lump	20	-55.60%	10	-32.30%	0.056
Cough	5	-13.90%	5	-16.10%	0.798
Lifestyle habits					
Alcohol	10	-27.80%	13	-41.90%	0.224
Tea	14	-40.00%	8	-27.60%	0.298
Coffee	10	-27.80%	11	-35.50%	0.498
Smoking	11	-30.60%	18	-58.10%	0.023

## Discussion

BE is a pre-malignant condition that is defined as a metaplastic transition from squamous epithelium to columnar epithelium in the distal oesophagus. Males and obese people are typically more likely to have BE [8–10]. These findings are supported by our data, which show that both the young group and the senior group had greater rates of obesity (52.8% vs. 58.1%) and a male predominance (63.6% vs. 77.4%). The two groups' variances weren't particularly noteworthy.

The short segment type accounts for the majority of BE patients in Asian nations [3], and this finding was confirmed in our research group among both young (94.4%) and older (93.5%) patients. A hiatus hernia is seen as a significant contributor to severe reflux and is closely related to BE [11]. According to the results of the current study, older people (58.1%) had a higher rate of hiatal hernia than younger people (38.9%). Age had no significant effect on hiatal hernia in BE patients, though ( $P=0.117$ ), and the increased rate of hiatal hernia in the elderly may just be a result of normal fluctuation.

Because BE can proceed to dysplasia or adenocarcinoma, there has been an increase in interest in the disease [1]. According to our findings, there were no differences between the young and elderly groups when it came to the detection of dysplastic tissue. One explanation could be that Eastern countries experience lower rates of dysplasia and adenocarcinoma than Western nations. For instance, in our patient population, only four occurrences of dysplasia and one case of adenocarcinoma were found.

An elevated risk of BE has been linked to GERD symptoms including heartburn or acid regurgitation [12,13]. However, research from Sweden and Italy revealed that 40% of those with BE did not exhibit any reflux symptoms [3,14]. More than half (58.1%–61.1%) of the reported BE cases, according to our study

Some lifestyle habits are considered to be risk factors for BE. Earlier studies reported a higher prevalence of BE in patients with certain lifestyle habits, such as alcohol drinking and cigarette smoking [3,15]. Our results found similar lifestyle habits between the young and elderly BE patients, with the exception of cigarette smoking, which was more prevalent of smoking in the latter group.

Individuals with BE reported worse health-related quality of life compared with that of the general population [16]. In a previous study that used the SF-36 questionnaire, the reported PCS and MCS scores for BE patients were 42.6 and 41.8, respectively. Another study reported PCS and MCS scores of 46.2 and 51.7, respectively [16,17]. More than half (58.1%–61.1%) of the BE cases in our study reported experiencing heartburn or acid regurgitation symptoms, however other subjects (38.9%–41.9%) did not exhibit any typical reflux symptoms. Contrary to what one might expect, young participants were more likely than older ones to experience unusual reflux symptoms, such as a painful throat and a lump in the throat.

In our investigation, there were various restrictions. First off, this study was an inquiry focused in a single healthcare centre. These patients might not have been representative of the general population since selection bias might have existed. Second, it was unknown whether antisecretory medications were used to treat reflux symptoms. Therefore, it's possible that the prevalence of GERD was understated. Third, since the answers to the questionnaires about lifestyle choices and reflux symptoms were provided voluntarily, there is a chance that unchecked inaccuracies crept into the data. There is a need for additional community-based research with more factors.

In conclusion, we discovered that clinical presentations and risk variables for young and old BE patients in our study sample were comparable. To further understand the pathophysiology of BE in young people, more research is required.

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