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Epidemiology and Risk Factors of Primary Spontaneous Pneumothorax in South Korea

공지사항

- 소속기관이나 저자명이 드러나지 않도록 해주세요.
- 제목 슬라이드 포함 최대 6장, Font size 20 이상
- PPT 파일 작성 후 PDF로 전환해서 접수(필수)

Purpose

- Primary spontaneous pneumothorax (PSP) is characterized by sudden lung collapse without external injury or underlying lung disease.
- Despite its potential severity, research on PSP occurrence and recurrence is limited, partly due to its low prevalence. Existing studies indicate varying incidence rates among females (1.2 to 6 per 100,000) and males (7.4 to 18.0 per 100,000).
- Therefore, this study aimed to explore the epidemiology of pneumothorax in Korea, including monthly incidence patterns by age group, and to investigate hemodynamic indicators affecting recurrence. These findings may help identify specific environmental and physiological factors contributing to PSP.

Methods

- We conducted a retrospective analysis of data from five hospitals covering the period from January 2013 to May 2023.
- Among 12,828 patients diagnosed with pneumothorax, 4,231 met the inclusion criteria. Excluded were patients under 10 or over 39 years of age, those with missing clinical data, and those with traumatic or secondary spontaneous pneumothorax.
- Subgroup analyses were performed based on age (teenagers and ≥ 20 years) and sex.

Results

- Our analysis revealed July was the most common diagnosis month for teenagers, followed by October and March. This monthly pattern differed from other age groups.
- Multivariate analysis revealed Body mass index (BMI) at initial diagnosis as a significant risk factor for first recurrence in male patients aged 16-19 years (HR 0.98; 95% CI 0.97-0.99; P = 0.0019) and in male patients over 20 years of age (HR 0.99; 95% CI 0.98-0.99; P = 0.0008).
- In females, Monocyte-lymphocyte ratio at the time of the first pneumothorax was significant (HR 1.41; 95% CI 1.07-1.87; P = 0.0166).

Figure 1. Monthly prevalence of the first diagnosis of primary spontaneous pneumothorax (A) teenage (B) 20-30s

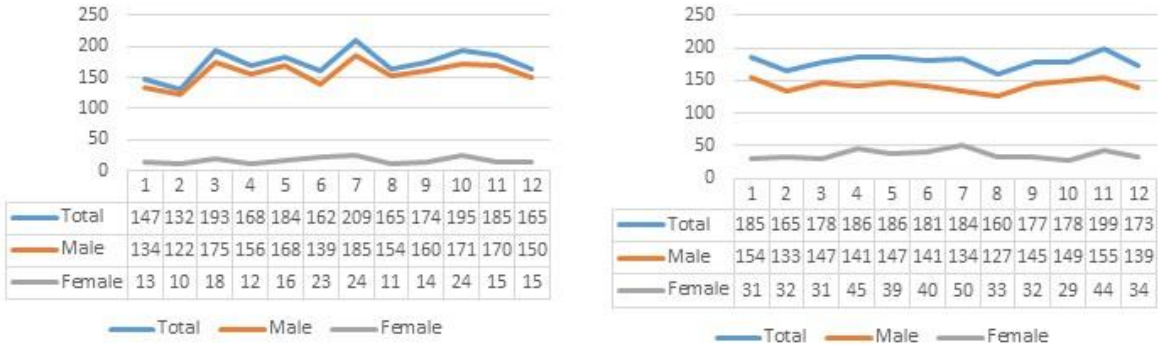


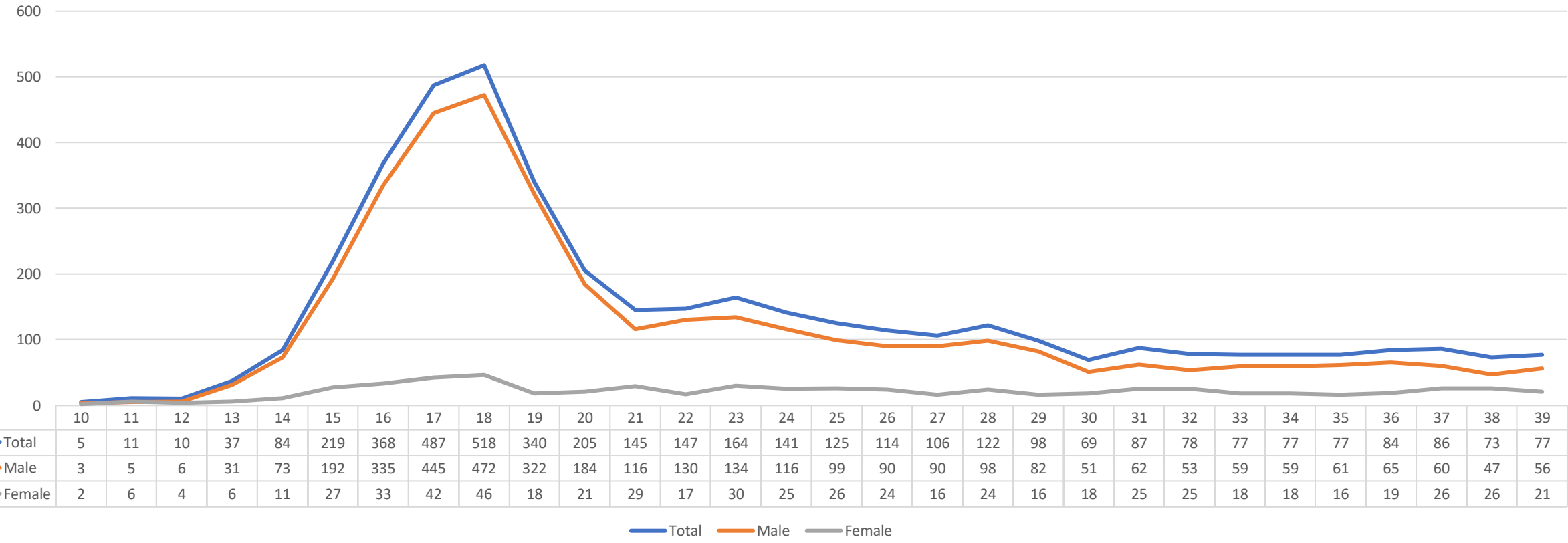
Figure 2. Multivariable Cox analysis for the 1st recurrence of primary spontaneous pneumothorax

Characteristics	16~19 years old		More than 20 years old			
	Male		Male		Female	
	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value
Age, years			0.99 (0.99-1.00)	0.0033		
BMI, kg/m^2	0.98 (0.97-0.99)	0.0019	0.99 (0.98-0.99)	0.0008	0.99 (0.98-1.00)	0.1038
White blood cell, 10^9/L					1.01 (1.00-1.02)	0.0467
Lymphocytes, %	1.00 (0.99-1.00)	0.0205			1.01 (1.00-1.01)	0.0728
Monocytes, %			0.99 (0.98-1.00)	0.0160		
Monocyte-lymphocyte ratio			1.20 (1.10-1.32)	0.0001	1.41 (1.07-1.87)	0.0166
Platelet, 10^9/L	1.00 (1.00-1.00)	0.0697				

Conclusion

- Our study provides significant insights based on month-based pneumothorax epidemiology analysis in Korea, which has not been extensively explored in prior research.
- We observed distinct incidence patterns among teenagers compared to those in other age groups, warranting further investigation.
- Furthermore, our findings linking BMI and inflammation status to pneumothorax recurrence offer valuable groundwork for future prospective studies aimed at prevention and effective treatment strategies.

Figure 3. Age at the first diagnosis of primary spontaneous pneumothorax



	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Total	5	11	10	37	84	219	368	487	518	340	205	145	147	164	141	125	114	106	122	98	69	87	78	77	77	77	84	86	73	77
Male	3	5	6	31	73	192	335	445	472	322	184	116	130	134	116	99	90	90	98	82	51	62	53	59	59	61	65	60	47	56
Female	2	6	4	6	11	27	33	42	46	18	21	29	17	30	25	26	24	16	24	16	18	25	25	18	18	16	19	26	26	21