

# Impact of capsaicin concentration producing coughs on clinical variables of asthmatics

학교법인 동은학원 순천향대학교 부속 부천병원 내과

\*최윤원, 박경훈, 이준혁, 박성우, 김도진, 장안수

**Background/Aims:** Cough is a common and important respiratory symptom. Inhaled capsaicin (8-methyl-N-vanillyl-6-nonenamide) has long been used to induce cough in a safe and dose-dependent manner, and the degree of induced cough reflects the reactivity of sensory C-fibers in the respiratory mucosa. Chronic cough is associated with an increased sensitivity to inhaled capsaicin in patients with asthma or chronic obstructive pulmonary disease. The aim of the present study was to evaluate usefulness of capsaicin provocation test for chronic cough, and to find relationship between capsaicin concentration producing coughs and clinical variables in patients with asthma based on the Global Initiative for Asthma (GINA) guidelines. **Methods:** 385 patients with chronic cough [capsaicin provocation test (+, n=153) vs. [capsaicin provocation test (-, n=232)] who has done with capsaicin provocation test recruited and evaluated by asthma diagnosis and clinical variables (Table 1). Asthma diagnoses were based on the Global Initiative for Asthma (GINA) guidelines. **Results:** Capsaicin positivity was more prevalent in patient with asthma diagnosis than in patients without asthma diagnosis (Figure 1A) (129/304 vs. 24/81, p=0.037). Capsaicin positivity was more prevalent in female patients than in male patients (Figure 1B) (123/271=45.4% vs. 30/114=26.3%, p=0.001). Capsaicin concentration producing coughs correlated with smoke amount (Figure 1C) (r=0.126, p=0.014). Capsaicin positivity was more prevalent in non-smoker patients than in smoker patients (133/295=45.1% vs. 20/90=22.2%, p=0.001). Capsaicin concentration producing coughs negatively correlated with methacholine PC20 (r=-0.106, p=0.045). Capsaicin concentration producing coughs correlated with BMI (r=0.120, p=0.019). Capsaicin concentration producing coughs negatively correlated with FEV1/FVC % pred. (r=-0.137, p=0.007). There were no relationship between Capsaicin concentration producing coughs and age, IgE, and atopy. **Conclusions:** Capsaicin test for asthma diagnosis should be considered for variable clinical factors.

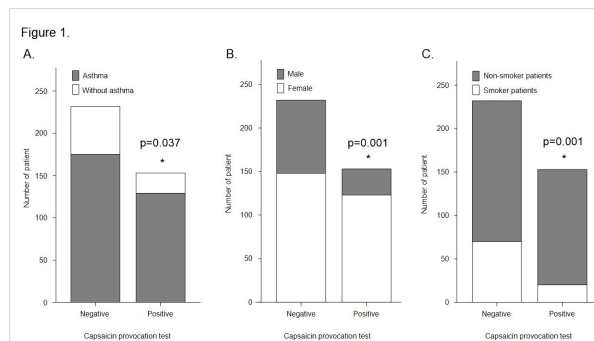


Table 1. Clinical characteristics in cough patients by capsaicin provocation test

	Capsaicin (+)	Capsaicin (-)
No. of subjects	152	233
Sex (male/female)	39/123	94/148
Age (of initial visit), yr	51.14±14.47	53.05±13.14
Onset of asthma, age, yr	47.60±15.43	48.93±14.99
Asthma duration, yr	0.40±2.65	0.28±1.88
Smoking status (NSES/CS)	130/22	150/183
Cigarettes smoked, pack, yr	1.58±5.31	4.77±11.24
Body Mass Index, kg/m <sup>2</sup>	24.08±3.37	24.60±3.26
FEV1, % pred	97.10±20.65	93.83±20.12
FVC, % pred	89.47±15.04	88.03±13.89
FEV1/FVC	81.10±8.63	78.21±8.54
PC20, mg/ml	16.30±10.20	15.44±10.52
Total IgE, IU	245.93±475.67	231.50±412.89
Atopy	69/87	112/120
BA (yes/no)	129/24	175/57

# Clinical features and Pathogens of Health Care-Associated Pneumonia: A Prospective Study

서울의료원 내과

\*임은빈, 이예현, 전재현, 황선미, 최재필, 김혜옥, 함초롬, 김수현

**Background/Aims:** The guideline of HealthCare-Associated Pneumonia (HCAP) introduced in 2005 recommended broad-spectrum empirical antimicrobial therapy targeting Multi-Drug Resistant Organisms (MDROs). However, the concept and optimal treatment strategy for HCAP have been controversial in several studies. We aimed to evaluate the clinical features of HCAP patients hospitalized in a Korean teaching hospital and the risk factors for pneumonia caused by MDROs. **Methods:** This was a prospective observational study of patients admitted with CAP or HCAP to Seoul Medical Center in 2014. We compared clinical characteristics, comorbidities, severity, identified pathogens, and clinical outcomes between two groups. **Results:** A total of 106 patients were enrolled, consisting of 47 (44.3%) with HCAP and 59 (55.7%) with CAP. Among the HCAP patients, nursing home residence were 40 (85.1%), and 15 (31.9%) were those hospitalized in preceding 90 days. The incidences of aspiration, and poor functional status were higher in the HCAP group. Although the HCAP patients showed higher PSI score (105 vs 85, p<0.001), in-hospital mortality (6.4% vs 5.3%) or ICU admission (6.4% vs 14.0%) was not higher than CAP patients. Streptococcus pneumoniae (27.7%) was the most frequent pathogen in the HCAP group, followed by Staphylococcus aureus (19.1%). There is no difference in MDROs isolation between HCAP and CAP groups (27.7% vs 13.6%, p=0.059). Pseudomonas aeruginosa was the most common MDRO in both groups. Multivariable analyses failed to show that the type of pneumonia was a predictable factor for MDROs. Only tube feeding (p=0.048) and prior hospitalization within one year (p=0.017) were associated with MDRO risk in hospitalized patients with HCAP or CAP. **Conclusions:** HCAP group showed older age, poor functional status, and higher PSI. HCAP itself was not a predisposing factor for MDROs whereas hospitalization within one year and tube feeding were the risk factors. For the treatment of HCAP, careful use of broad-spectrum antibiotics for selected patients is important.

Table 1. Baseline Characteristics and Comorbidity

	Total (n=106)	HCAP (n=47)	CAP (n=59)	p-value
Male, n (%)	62 (58.5%)	22 (46.8%)	40 (67.8%)	0.024
Age, yrs	75.7±11.8	77.5±11.8	70.8±11.6	0.003
Residence in a nursing home or long-term facility, n (%)	40 (37.7%)	40 (85.1%)	0	<0.001
Prior hospitalization within 90 days	15 (14.2%)	15 (31.9%)	0	<0.001
Prior hospitalization within one year	30 (28.3%)	26 (55.3%)	13 (22.0%)	<0.001
Comorbidity, n				
Malnutrition	1 (1.1%)	2 (4.3%)	1 (1.7%)	0.001
Cardiovascular disease	50 (47.2%)	26 (55.3%)	24 (40.7%)	0.217
Chronic liver disease	2 (1.9%)	2 (4.3%)	0	0.09
Diabetes mellitus	25 (23.6%)	14 (29.8%)	11 (18.7%)	0.06
Chronic lung disease	31 (29.2%)	13 (27.7%)	18 (30.5%)	0.297
Chronic renal disease	4 (3.8%)	3 (6.4%)	1 (1.7%)	0.228
Immunosuppressive agents	10 (9.4%)	0	10 (16.9%)	0.557
Central nervous system disorders	24 (22.6%)	14 (29.8%)	10 (16.9%)	0.091
Psychiatric disease	30 (28.3%)	33 (70.2%)	6 (10.2%)	<0.001
Bone fracture	7 (6.6%)	5 (10.6%)	2 (3.4%)	0.136
Clinical parameters				
Altered mental status, n (%)	43 (40.6%)	24 (51.1%)	19 (32.2%)	0.001
Heart Rate	95.2±17.4	95.0±18.9	95.7±16.2	0.728
Systolic blood pressure	125.6±23.9	119.6±20.1	130.4±25.7	0.021
Respiratory rate/min	21.9±4.3	22.4±5.2	21.4±3.3	0.263
Bacteremia	5 (4.7%)	4 (8.5%)	1 (1.7%)	0.109
Pleural effusion	14 (13.2%)	7 (14.9%)	7 (11.9%)	0.430
Laboratory findings				
PaO2, mmHg	65.5±18.2	66.4±21.2	64.8±15.5	0.455
White blood cells, /mm <sup>3</sup>	14.3±12.1	15.5±17.2	13.4±5.2	0.372
C-reactive protein, mg/dL	11.0±8.3	9.9±7.9	11.8±8.7	0.228
Index for disease severity at onset				
CURB-65 score	1.4±0.9	1.6±1.0	1.3±0.8	0.127
PFI score	94.2±29.8	105.3±29.4	85.3±27.0	<0.001
PFI class 2 IV	47 (44.3%)	31 (66.0%)	16 (27.1%)	<0.001
PaO2/FiO2, mmHg, SpO2, %	42 (39.6%)	21 (44.7%)	21 (35.6%)	0.342
Clinical outcomes				
Duration of antibiotic therapy, day	12.8±8.1	14.2±7.1	11.6±6.6	0.092
Length of hospital stay, day	14.5±9.2	16.4±7.9	13.0±10.0	0.063
In-hospital mortality rate	6 (5.7%)	3 (6.4%)	3 (5.1%)	0.965
ICU admission	11 (10.4%)	3 (6.4%)	8 (13.4%)	0.174
Need for mechanical ventilation	9 (8.5%)	2 (4.3%)	7 (11.9%)	0.136

Data are presented as mean±standard deviation or n (%), unless otherwise stated.