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78. Asthma: a heterogeneous disease

P519**Rasch analysis for evaluating abbreviated World Health Organization quality of life questionnaire (WHOQOL-Bref) in north Indian patients with bronchial asthma**

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Introduction: A disease-specific instrument to describe health-related quality of life (HRQoL) in Indian asthmatics is not available. A generic Hindi HRQoL measure - abbreviated World Health Organization Quality of Life questionnaire (WHOQOL-Bref) - has however been developed and validated in India. We evaluated the WHOQOL-Bref in adult patients of asthma, and tested possible modifications to the instrument to improve its psychometric adequacy.

Methods: 67 asthmatics completed the WHOQOL-Bref. Rasch analysis was used to explore the psychometric performance of the four domains (physical, psychological, social relationships, and environment) of the scale. Overall fit of data to model expectations, appropriate category ordering, presence of differential item functioning (DIF), individual item fit, and targeting of item difficulty to patient ability were explored for each domain. Item deletion and rescoring were applied to misfitting items to improve overall performance.

Results: Overall fit of the WHOQOL-Bref data was adequate. Item 3 had a large positive fit residual value resulting in poor construct validity for physical domain. No item exhibited DIF. Ten items had disordered thresholds. The WHOQOL-Bref was modified by dropping item 3, and rescoring category structures of 16 items. The modified scale had good construct validity for all domains, ordered thresholds for all items, and good targeting of items to persons.

Conclusion: WHOQOL-Bref proved a psychometrically inadequate scale in our study group. However, the scale, when modified through Rasch analysis, proved better at describing HRQoL in the asthmatics studied.

P520**Lung sound monitoring in real time operation mode in diagnosis of exercise-induced asthma**

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Introduction: Exercise-induced asthma is an actual problem of pulmonology and sports medicine. It is important to watch lung sounds evolution on physical activity.

Objective: Assessment lung sounds evolution and detection wheezes on physical activity.

Materials and methods: Clinical trial was conducted on 13 patients with diagnosis of bronchial asthma. The sensor of the electronic stethoscope was connected with the radio transmitter and placed at the patient's neck over the trachea. Lung sounds were monitored at the field testing. The investigators got a lung sounds by radio receiver and analyzed it by computer program in real time operation mode.

Results: Wheezes were registered in 6 patients on physical activity. Wheezes appeared again on the 12-th minute after the end of the field testing in 2 patients. The following changes in the form of an acoustic pattern were observed in all patients: amplitude of an acoustic signal and frequency of respiratory cycles were increased, a respiratory cycle was shortened.

Conclusions: The use of lung sound monitoring in real time operation mode makes it possible to assess lung sound evolution and to detect wheezes during the field testing.

P521**Relationship between bronchial asthma and pelvic organ prolapse**

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Objective: Genital organ prolapse is frequently observed in clinical practice. Vaginal birth, multiparity, menopause, history of genital prolapse, obesity, constipation and bronchial asthma are the most common determinants of risk of genital prolapse. The aim of the study was to evaluate the relationship between bronchial asthma and pelvic organ prolapse.

Materials and methods: A total of 200 patients, 100 bronchial asthma, 100 control group were included in this study. Women, who were pregnant, in the period of 6 months after birth, having connective tissue diseases, had surgery for genital prolapse before and operative births in the past were excluded from the study. There was no limit in the age. Pelvic examinations were performed by using POP-Q system.

Results: There was a decrease in the measurements of the points Aa, Ba and C in the group of asthma bronchiale. There was no significant difference between the measurements of other points. Compared with control group, the stage using

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POP-Q were higher in the patients with bronchial asthma (Mann-Whitney $U=4255$ $p=0.04$). We determined that stress urinary incontinence was much more in the group of bronchial asthma while urge urinary incontinence was not.

Conclusion: The stage using POP-Q were higher in the group of bronchial asthma. This showed the importance of the bronchial asthma in the etiology of genital prolapse. To inform the patients about the risk of genital prolapse will effect the patients' adaptation on the therapy of bronchial asthma. This will arise the quality of life and decrease the cost of therapy of genital prolapse.

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Clinical characteristics of acute asthma presentation to the emergency department

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Background: The incidence and complexity of asthma acute exacerbations (AA) are widely increasing. The emergency physician (EP) plays a key role in AA: emergency management; medical treatment; diagnosis; prevention; maintenance; follow up; education about self-management.

Aims: To define the epidemiological and clinical impact of AA at presentation to the emergency department (ED) and the role of the EP.

Methods: Six months observational prospective clinical study including every consecutive AA patient who presented to the ED of a university teaching hospital

Results: Patients: 209 (1.15/day). Rates%: females 63.5; Italian 70.2; practitioner's request 6.0; current therapy for asthma 83.1; known risk factors 63.5; previous physician's visit 15.9; ED therapy 79.5; ED mechanical ventilation 2.9; hospitalization 18.2; discharge therapy 77.9; discharge follow up 65.9; ED rebounds 4.3.

Media: age 41 years; ED waiting time 48 minutes; ED time for evaluation and treatment 104 minutes; ED total time 153 minutes; systolic blood pressure 127 mmHg; diastolic 78 mmHg; pulse rate 94 bpm; pulseoxymetry 97%; body temperature 36.9°C; symptoms debut before ED 7 days; time between second and first ED visit 50 days.

Conclusions: The majority of asthma exacerbations has a window of opportunity in which deterioration can be recognized and reverted; severe asthma attacks can be prevented by currently available strategies. Of concern was the dependence of most patients on ED for initial care, and the small number of cases in which patients visited a physician before presenting to the hospital. Nowadays the EP must be involved in approaching all typical most frequent and relevant causes of inadequate asthma control.

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Relationship between the quality of life and control achieving in asthmatics with cold airway hyperresponsiveness

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Background: The possibility to predict bronchial asthma (BA) control depending

on the life quality (LQ) and cold airway hyperresponsiveness (CAHR) have not been revealed up until now.

Aim: To study the correlation of LQ and asthma control and define the predictors of uncontrolled BA clinical course.

Methods: 116 BA patients were examined twice (in winter and in summer). The questionnaires SF-36 and AQLQ were used. The asthma control was assessed by ACT test. The degree of cold bronchoconstriction was measured according to the fall of FEV₁ (Δ FEV₁) after 3-minute hyperventilation by cold (-20°C) air.

Results: The first full examination was done in winter and asthma control was assessed in summer. To estimate the correlation between asthma control and LQ, two groups were formed. The 1st group consisted of 51 patients with controlled and partially controlled BA, the 2nd group included 65 patients with uncontrolled BA. LQ by SF-36 was better in the 1st group except the domain "mental health". All scales of AQLQ were also significantly higher in this group. Correlation analysis demonstrated the dependence of ACT score on the intensity of cold bronchoconstriction ($r=-0.72$, $p<0.01$) as well as on the degree of environment negative influence on specific LQ ($r=0.69$; $p<0.001$). Discriminant analysis showed that uncontrolled BA during summer can be predicted on the basis of CAHR intensity (Δ FEV₁) in winter, levels of role physical (RP) and emotional (RE) scales SF-36 and "environment" and "activity limitation" scales AQLQ.

Conclusion: It has been found out that parameters of general and specific LQ questionnaires are informative predictors of future asthma control.

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Emotional and psychological peculiarities of compliance of patients with bronchial asthma

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Background: Compliance is one of the major factors of achieving asthma control. Emotional and psychological peculiarities of compliance in patients with bronchial asthma (BA) have not been studied enough.

Aim: To study clinical-functional and psycho-emotional peculiarities of patients with BA depending on compliance.

Methods: 91 patients with mild to moderate BA at the age of 36 ± 1.1 years were examined. Women comprised 65%. Minnesota Multiphasic Personality Inventory (MMPI), Hospital Anxiety and Depression Scale (HADS), Self-estimation scale developed by Spilberger-Hanin, and TAS for alexitimia were used.

Results: The patients were divided into groups considering compliance: the 1st group consisted of patients with positive compliance (PC), they followed all doctor's recommendations during the year; the 2nd group included the patients with negative compliance (NC), they either absolutely or partially did not follow the recommendations. The patients with NC had a more intense degree of BA severity (69%) and were of an older age ($p<0.002$). Higher values were revealed in the 2nd group by TAS, scales of depression, personal and reactive anxiety. The average profile of a personality by MMPI scales in BA patients with NC was higher than the standard one. A high risk of psychopathologic reactions was revealed in the patients of this group (impulsiveness, nonconformity, nonstereotipeness). The patients of this group had inner tension, nervousness, aloofness, which can intensify psychosomatic disorders.

Conclusion: For BA patients with NC it is necessary to create a psychotherapeutic environment in the hospital as well as an individual approach to recommendations and their explanation.

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Glucocorticosteroid receptor (GCR) gene isoforms expression in bronchial asthma (BA) patients

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Peculiarities of GCR function is one of mechanisms of steroid dependent asthma (SDBA). Most important isoforms are CR α and CR β , formed due to alternative splicing of NR3C1 gene. Alternatively to CR α , CR β is not linked to glucocorticosteroids (GCS), acting as inhibitor, which concurs with CR α for linking with hormone-responding element or coactivator. This mechanism may lead to steroid resistance (SR).

The aim of study was to evaluate the role of GCR isoforms in SDBA development. **Methods:** 9 SDBA patients, 15 ones – with mild asthma (MBA), 7 – moderate BA and 7 healthy controls were included. In 10 MBA ones, inhaled GCS were primary administered. In this group blood samples were taken before and 2 weeks after start of treatment. In SDBA patients, having long history of inhaled and oral GCS, blood was taken once. Total RNA from peripheral blood cells was isolated using RIBO-zol-B nucleic acid extraction kit (CRIE, Russia). Level of CR α and CR β expression was evaluated by RT-qPCR method.

Results: No statistic difference between expression levels in BA and controls was found. CR α expression was higher in SDBA than in other asthmatics (243,0 vs 30,7; $p=0.05$). In MBA during the GCS treatment trend to CR α expression increase (from 9,3 to 94,5) and CR β expression decrease (from 820,9 to 33,3) was revealed. Significantly increased CR α /CR β ratio in MBA after treatment (from 0,5 to 17,7; $p=0,022$) was same as in SDBA (19,9).

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Conclusions: Level of CR β expression, which didn't change in SDBA, can be discussed as a marker of absence of SR. Sensitivity to GCS can be evaluated basing on initial domination of CR α expression in SDBA and increase of this indicator in MBA during the course of GCS treatment.

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Gastroesophageal reflux disease and asthma in pregnant women

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Introduction: Asthma, as a public health problem world-wide, seems to be significantly associated with GERD. GERD and its symptoms are also more prevalent in pregnant women, worsening by the increase in gestational age. This study aimed to evaluate GERD and its relation to asthma in pregnant women.

Methods: One-hundred and seventy three pregnant women (mean age, 28.8 \pm 5.3 years and mean gestational age, 24.8 \pm 9.2 weeks) were included. The diagnosis of asthma was made on the basis of the Guidelines of the National Asthma Education and Prevention Program (NAEPP). As challenge tests are not recommended in pregnancy, a group of patients were classified as probable-asthmatics. They were the cases in whom symptoms and signs were suggestive of asthma but the spirometry was normal.

Results: Asthma was diagnosed in 37% of the included women and 26.6% were probable to have asthma, while 36.4% were non-asthmatics. GERD was present in 80.9% of the pregnant women. GERD was not significantly higher in asthmatic or probable asthmatic women compared to non-asthmatic ones, but in pregnant women who had asthma, GERD was significantly more severe compared to women who did not have asthma (p=0.02).

Conclusion: In this study, we observed a high prevalence of GERD in pregnant women. Although GERD was not higher in asthmatic or probable asthmatic pregnant women, it tended to be more severe in asthmatic cases. This points to the importance of early diagnosis and treatment of GERD in asthmatic pregnant women.

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The relation of body mass index to asthma severity, control level of disease and quality of life

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Objectives: Epidemiologic studies have suggested a relationship between body mass index (BMI) and asthma. The effects of obesity on asthma control as well as asthma related quality of life are not well known. We investigated the effect of BMI on asthma control level (ACQ), severity of the disease, lung function, symptoms and asthma related quality of life (AQLQ).

Methods: In a cross-sectional study, 204 patients (162 female, 42 male; mean age 36 \pm 13 years) were enrolled with mild and moderate asthma according to Global Initiative for Asthma (GINA) guidelines. Patients were stratified by BMI of \geq 30 kg/m² (obese), 25-29.9 kg/m² (overweight), \leq 24.9 kg/m² (normal and underweight). Outcomes included the recent control of asthma (ACQ), Asthma Quality of Life Questionnaire (AQLQ), forced expiratory volume in 1 second (FEV1) and daily symptom scores.

Results: Forty nine of the patients (24%) were considered as an obese and 119 (58.3%) were overweight and obese. No relationship has been observed between sex and obesity (p>0.05). BMI was strongly correlated with age (r=0.533, p=0.01). There was no association between BMI and outcomes as asthma control, asthma related symptom score, FEV1, quality of life.

Conclusions: Our findings suggested that obesity is not associated with worse asthma outcomes in our population. Weight loss may not improve asthma control and quality of life in this population.

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Validity and reliability of "asthma quality of life questionnaire" in a sample of Turkish adult asthmatic patients

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Aim: We aimed to investigate the validity and reliability and of "Asthma Quality of Life Questionnaire" (AQLQ) in Turkish adult asthmatic patients.

Method: New or previously diagnosed (according to GINA 2008) symptomatic 118 consecutive stable asthmatic patients between 18 and 55 years old were included. Asthma severity was determined and Turkish adaptation of the AQLQ was administered. Lara asthma symptom scales (LASS), pulmonary function tests, Turkish adaptation of Medical Outcomes Survey Short Form-36 (SF-36) were

evaluated. All assessments were done twice at recruitment and after 10 weeks. During this period patients were allowed to make modifications on their medication when necessary.

Results: Among the recruited 118 patients 95 were female and 14 were lost in the follow-up. Sixty-two percentages of the patients had mild and 38% moderate asthma. The internal consistency of AQLQ was high (Cronbach's alpha 0.81-0.87) and item-total score correlations were ranging from 0.75-0.89. The cross-sectional and longitudinal correlations between AQLQ total and domain scores and SF36 domain scores were in a range of little or fair degree (r=0.241-0.626 p<0.005). Total AQLQ scores were observed significantly different according to disease severity and LASS both in the first (p<0.001, both) and 10 weeks follow-up visits (p=0.006, p<0.001 respectively). A statistical significant change was observed in AQLQ symptom score as in total LASS changed (p<0.001, both) in the follow-up. **Conclusion:** Our results demonstrated that Turkish version of AQLQ is feasible, reliable, valid and sensitive to changes in adult asthmatics.

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The relationship between placenta histological features and asthma severity and prescribed therapy

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Background: Asthma (A) is a most frequent pulmonary disease in pregnant (12%). Nevertheless the data on influence of its severity and treatment to the placenta structure are insufficient.

The goal: to compare placenta histological features in pregnant with different asthma severity and treatment with the same of healthy females.

Materials and methods: Histological study was carried out in 118 females with A and 100 healthy females. 75 of A females were administered ICS, but 24 of them rejected ICS intake.

Results: Histological study appeared the decrease of amount of patients with co-existence of placenta structure and terms of gestation in A pregnant with mild and moderate persistent A in comparison with healthy females, but without statistical significance.

Table 1

	n	Coexist n	Coexist %	Not coexist n	Not coexist %
A Onset	11	8	72.7	3	27.3
Mild A (int)	32	24	75.0	8	25.0
Mild A (pers)	42	24	57.1	18	42.9
Moderate A	28	16	57.1	12	42.9
Severe A	5	3	66.6	2	33.4
No A	100	74	74	26	26

Placenta development coexisted terms of gestation in 72% of pregnant, administered ICS and in only 45.8% of A pregnant, rejected ICS intake (p<0.01). Significant differences of chronic placental insufficiency were seen between pregnant with mild intermittent A and mild persistent BA, as well as with moderate A (35.38%, 51.22% and 71, 43% resp. (p<0,05)). Within pregnant, administered ICS 70% appeared compensated, 25.93% - sub compensated and 7.07% decompensated placental insufficiency. Within patients, rejected ICS values were 47,14%, 45,71% and 7,15% respectively.

Conclusions: Treatment with ICS while pregnancy has greater influence to placenta condition in comparison with A severity.

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Impact of smoking in patients with and without history of asthma

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Patients with a history of asthma who smoke develop an accelerated decline in lung function and greater mortality. More complex studies are needed to distinguish asthma from COPD in this population.

Objectives: Evaluate the characteristics of a COPD population with and without history of asthma.

Methods: We invited people \geq 40 y/o. who smoked at least 10 years (current or ex-smokers), during one week on Nov 2005, 2007 and 2009. A questionnaire on respiratory symptoms, demographics and spirometry were done. COPD was defined by a FEV₁/FVC <70, the presence of symptoms and smoking history. Population was divided into 2 groups: COPD with history of previous asthma (AS) and COPD (NAS).

Results: 1626 patients were surveyed; 61 were excluded (< 40 y/o or non-obstructive lung disease). Mean age was 58.4 \pm 10.4 y/o, 54% were men. 89 patients had previous diagnosis of asthma. 329 of 1565 (21%) patients were diagnosed with COPD, 42% of AS vs 19% of NAS (p=0,001). The pack/years index in AS was 19 \pm 10 vs. 34 \pm 23 in NAS (p = 0.001). FEV₁% and FEV₁/FVC were comparable in both groups (67% and 57 vs 59). No differences in symptoms was found.(p= NS) AS had more emergency visits (39.5% vs 24.4%, p = 0.047),

higher previous spirometric tests (73.7% vs 54.6%, $p = 0.026$) on the last year, and higher use of bronchodilators and ICS.

Table 1

	AS (n=38)	NAS (n=291)	p
Salbutamol	12 (31%)	40 (13,7%)	0.039
Ipratropium	3 (7,8%)	15 (5,1%)	0.78
LABA	8 (21%)	27 (9,2%)	0.10
ICS	14 (36,8%)	45 (15,5%)	0.02
Oral Steroids	2 (5,2%)	1 (0,3%)	0.046

Conclusions: Patients with history of asthma develop COPD more often, with lower smoking load, and have higher use of medical resources in spite of more use of effective treatment.

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The association between the asthma control test and the asthma quality of life questionnaire in adult asthmatics

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Aim: Asthma control and quality of life are expected to be correlated. We aimed to evaluate the association of asthma control test (ACT) with asthma quality of life questionnaire (AQLQ) and guideline based control assessment. We also aimed to investigate the impact of therapy adjustment according to ACT score on AQLQ levels.

Methods: A total of 101 consecutive, stable asthmatic patients between 18 and 55 years were included in the study. ACT and AQLQ were administered. GINA based control assessment was performed. Based on ACT control status, treatment was adjusted by stepping down in controlled, stepping up in uncontrolled and some well controlled patients. In some controlled and well controlled patients no therapy adjustment was done. After 3-months ACT and AQLQ were repeated.

Results: Mean age of the patients (82 female) was 42 ± 11 . According to GINA 22% were controlled, 20% were partly controlled and 59% were uncontrolled. Median and range for ACT score was 20 (16-23), while mean AQLQ total score was 4.59 ± 0.94 . We determined a significant association between ACT and AQLQ activity, symptom and environmental stimuli domain scores and total score ($r=0.651$, 0.697 , 0.348 , respectively, $p < 0.001$). ACT scores increased in the step-up group ($p < 0.001$), however AQLQ total scores were not affected. We found ACT concordant with GINA recommended control classification in the first ($\kappa=0.511$, 7.718) and third months ($\kappa=0.599$, 7.912) ($p < 0.001$ for both).

Conclusion: We determined an association between ACT and AQLQ. ACT was also found fairly concordant with GINA. However, treatment adjustment according to ACT was not found satisfactory in terms of quality of life.

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Asthma, chlamydia trachomatis infection and women reproductive health

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Background: As a result of decrease in functional activity of T helper type 1 lymphocytes patients with asthma are predisposed to Chlamydia trachomatis (ChT) infection.

Objective: The aim of this study was to reveal the prevalence of ChT infection among asthma sick women and its influence on women reproductive health.

Methods: 44 asthmatic women aged from 17 to 45 years and 20 matched healthy women participated in the study. All were submitted to detailed clinical history, gynecologic examination and ultrasound of reproductive organs. Specific IgG, IgA and IgM antibodies were defined in serum by enzyme-linked immunosorbent assay. Research of antigens to ChT in cervical smears was spent by polymerase chain reaction.

Results: A diagnostic titer of IgG antibodies to ChT was defined in 29,5% (13) asthmatic women and in 10,0% (2) healthy women. 53,8% (7) from 13 positive to ChT infection patients had the raised titers of IgG and IgA antibodies simultaneously. Antigens to ChT have been revealed in cervical smears in 18,2% (8) asthmatic women and in 5,0% (1) healthy women. In ChT infected asthmatic women, in comparison with the patients without ChT infection and with the control, the increase in prevalence of chronic inflammatory diseases of uterus and ovaries ($46,2 \pm 13,8\%$ vs $12,9 \pm 6,0\%$ and $20,0 \pm 8,9\%$), colpitis ($53,8 \pm 13,2\%$ vs $22,6 \pm 7,5\%$ and $20,0 \pm 8,9\%$) and dysfunctional uterine bleedings ($53,8 \pm 13,2\%$ vs $6,45 \pm 4,4\%$ and $10,0 \pm 6,7\%$) was marked.

Conclusion: Reproductive aged asthma sick women should be examined for an exception of ChT infection.

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Self-reported dental health and related factors in patients with asthma and chronic obstructive pulmonary disease

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Background: There are some studies about dental problems of asthmatic patients. However, studies comparing dental diseases in patients with asthma and with COPD are not sufficient.

Aim: Our aim is to compare the frequency of self-reported dental problems, their treatments and to determine affecting factors.

Method: A face-to-face questionnaire including the history of their diseases, dental problems and treatments, tooth brushing habits and comorbidity questions was applied by a doctor to the patients who admitted to Chest Diseases Dept. and Immunology and Allergy Diseases Subdept.

Results: 292 patients (63.4% asthmatic, 36.6% with COPD) and 286 controls were included to the study. Mean dental disease durations were 14.04 ± 0.80 and 15.18 ± 1.01 years in patients with asthma and COPD, respectively ($p > 0.05$). There were dental problems in 91.6% of asthmatics and in 97.8% of COPD patients ($p=0.01$). The frequency of the subjects with dental caries was 89.7% in asthmatics, 95.3% in COPD patients, and 86.4% in the control group ($p=0.04$). As for tooth brushing habit, 47.0% of asthmatic patients, 21.5% of patients with COPD, and 58.0% of the control group stated to perform regularly once or twice per day ($p < 0.001$). Only 41.6% of asthmatic patients, 9.3% of COPD patients, and 52.1% of the control group ($p < 0.001$) had elementary or higher education.

Conclusions: Dental caries is the most frequent dental problem. The frequency of tooth brushing is related to the educational status and the patients should be instructed to perform this act regularly as recommended.