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was 96.2%. AS was determined by a positive response to any of: have you 1) been woken by an attack of shortness of breath at any time; 2) had an attack of asthma; 3) were you currently taking any medicine for asthma; 4) had wheezing or whistling in your chest when you did not have a cold. It was determined by positive response to do you have any nasal allergies including hay fever. Symptoms prevalence was calculated by adding up percentage of patients having at least 2 out of 4 periodical measurements: FEV1 < pred - 2 sd or PC20 < 1.8 IU/ml (p = 0.05). Hypertension (p = 0.048), chronic heart failure (p = 0.006) and peripheral vascular disease (p = 0.006) were significantly more often registered in COPD patients. CVA, relationship problems and addiction problems were quite often registered as underlying disease. Compared to all comorbidity registered in the National Survey comorbidity in asthma and COPD is more prevalent.

**Conclusions.** Comorbidity is quite prevalent in asthma and COPD. It results in additional health problems, mainly in the field of cardiovascular and pulmonary diseases. In relation to the quality of care of asthma and COPD and the development of guidelines attention to comorbidity is necessary.

(1) Bill D, Dekker FW and Van der Velden J. Quality of care of asthma and COPD in Dutch General Practice. Eur Resp J 1994; 7 (s. 18):417.

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**P2198** Bronchial Asthma Symptoms in the Patients with Chronic Bronchitis

T. N. Bilitchenko, Y.S. Lebed in, G.L. Osipova. Scientific Institute of Pulmonology, Moscow, Russia

It is difficult enough to distinguish the patients with bronchial asthma (BA) if they suffer from chronic bronchitis (CB). Randomized city population study included the sample of 760 subjects of both sexes (352 males and 454 females), aged 55-64, permitted to measure the serum IgE levels in relation to the presence or the absence of bronchial asthma symptoms. UATLD Questionnaire was used. The criterion of CB was generally accepted; BA criterion was the following: two positive answers to 4 questions: you have had an attack of breathing problems or wheezing or wheezing in the last 12 months. It was analysed logarithmic values of serum IgE. The patients were counselled by two doctors independently.

BA was found in 23.4% of the patients with CB and in 2.0% of the subjects without CB (p < 0.05). The geometrical mean of serum IgE was 3.4 ± 1.6 IU/ml in the patients with bronchitis and 4.6 ± 1.6 IU/ml in the subjects with bronchial asthma (p = 0.001). In the patients with CB and coughing plus wheezing in the last 12 months IgE level was found lower: 4.3 ± 1.8 IU/ml (p = 0.05). According to clinical study the specificity of BA criterion was 93% and sensitivity was 71%. Prognostic value was calculated as 69%.

Presented data allow to conclude that the criterion of BA may be very helpful in epidemiological and clinical study to recognize the patients with bronchial asthma.

**P2199** Epidemiology of Nocturnal Asthma in a Rural Community of Northern Sicily

V. Bellia, R. Fusielli, G. Filippese, I. Cecoilio, F. Cibella, G. Cuttiu, G. Valenti, G. Bonissone. Istituto di Pneumologia dell'Università e Osservatorio Epidemiologico Regionale, Palermo, Italy

Nocturnal asthma (NA) is estimated to occur in 2/3 to 3/4 of patients; however there may be a gross overestimation: in fact available prevalence data do not pertain to the general population of asthmatics since derived from hospital series (Turner-Warwick, 1984) or from patients preselected because of acute disease under treatment (Turner-Warwick, 1988). Therefore we evaluated the prevalence of NA-associated symptoms from data relevant to a prevalent study on asthma carried out on a general population sample (GPs) of 1100, randomly selected in a rural area of northern Sicily. To questions on frequent awakenings due to dyspnea or cough, a positive response was recorded respectively in 10 and 15% of asthmatics, as compared to 1.0 and 1.5% of GPS. Similarly 5 and 8.3% of asthmatics (0.9 and 1.6% of GPS), gave a positive response to questions on frequent occurrence of breathlessness or chest tightness at wake-up in the morning.

Occasional occurrence of the cited symptoms was recorded in 16.7 to 23.3% of asthmatics and in 2.3 to 4.9% of GPS. These rates increased in subjects aged over 65 yrs (occasional report in 26.7 to 46.7%), although a confounding effect of cardiovascular diseases may be important. These data confirm that NA is "a manifestation of more severe inflammation in the airways of subjects with asthma" (Oosterhoff et al, 1995) and as such it recurs in a percentage of patients much lower than previously estimated.

**P2200** Single Breath Transfer Factor for Carbon Monoxide in Patients with Bronchial Asthma and Cold of a Norwegian Community Sample

I. Wolf, P.S. Bøkke, A. Gatvik. Department of Thoracic Medicine, University of Bergen, Bergen, Norway

Limited community based data is available on the distribution of transfer factor variables in healthy and diseased subjects in Northern Europe. In a cross sectional survey of a Norwegian general population sample of 1275 subjects aged 18-73 years examination with single breath transfer factor for carbon monoxide (TLCO) was performed. The subjects also were diagnosed as having bronchial asthma or chronic obstructive lung disease (COLD) based on a clinical and spirometric examination (Thornx 1991:468:63-70). The prevalences of bronchial asthma and COLD in this population were 2.4% and 5.4%, respectively. Reference values for TLCO were estimated from never-smoking subjects of the present sample without respiratory symptoms or disorders (Thorax 1992:47:167-73). When these reference values were applied on the entire sample mean (SD) TLCO in percent predicted (TLCOS) in asthma patients was 97% (13%) in men and 105% (15%) in women. Corresponding figures in patients with COLD were 82% (25%) in men and 90% (19%) in women, while in subjects with neither of the disorders the figures were 101% (15%) and 102% (14%). In conclusion, in this Norwegian community sample patients with COLD had reduced values of TLCOS, while patients with bronchial asthma had normal values of TLCO. For both asthmatics and COLD patients men tended to have lower values of TLCO than women.

**P2201** The Importance of Asthma Education in Patients with Asthma


Despite recent developments in the diagnosis and treatment of asthma, there seems to be a rise in morbidity and mortality related to inaccurate education of patients lacking necessary information about the disease. This study sought to evaluate patients' information about their disease and their measured inaccuracy in the questions on: (1) were you woken by an attack of asthma at any time (2) had an attack of asthma (3) were you currently taking any medicine for asthma (4) had wheezing or whistling in your chest when you did not have a cold. R was determined by positive response to any of: have you I) been woken by shortness of breath 19.2%, attack of asthma 0.9%, wheezing 0.9%, asthma medication 0.9%, nasal allergies 20.5%. Overall AS prevalence was 96.2%. AS was determined by a positive response to any of: have you I) been woken by an attack of shortness of breath at any time 2) had an attack of asthma 3) were you currently taking any medicine for asthma 4) had wheezing or whistling in your chest when you did not have a cold. R was determined by positive response to do you have any nasal allergies including hay fever. Symptoms prevalence was calculated by adding up percentage of patients having at least 2 out of 4 periodical measurements: FEV1 < pred - 2 sd or PC20 < 1.8 IU/ml (p = 0.05). Hypertension (p = 0.048), chronic heart failure (p = 0.006) and peripheral vascular disease (p = 0.006) were significantly more often registered in COPD patients. CVA, relationship problems and addiction problems were quite often registered as underlying disease. Compared to all comorbidity registered in the National Survey comorbidity in asthma and COPD is more prevalent.

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**P2202** Detection of Adult Asthma/COPD in General Practice

G. van den Boom 1,2, C.P. van Schayck 2, M.P.M.H. Rutten2, P.R.S. Tirimanna 1,2

1 Dept General Practice and Social Medicine, University of Nijmegen; 2 Dept Health Economics, University of Limburg, The Netherlands

In 10 general practices, a large sample (n = 1155) of the open adult population has been screened for (early) signs of asthma/COPD. Non steroid-dependent subjects with ages between 25 and 70 were included. Screening consisted of lung function measurements (FEV1, VC and reversibility 0.8 mg salbutamol) and a Dutch version of the MRC questionnaire. A mildly impaired lung function, the presence of symptoms or a combination of both rendered a positive screening result: these subjects were regarded as having an increased risk of developing asthma/COPD or were likely to have as yet undetected asthma/COPD. In this sample 5% (n = 60) of patients had evidence of asthma/COPD. The prevalence of asthma/COPD was estimated in 2.5% of patients attending general practice. It is difficult enough to distinguish the patients with bronchial asthma (BA) if they suffer from chronic bronchitis (CB). Randomized city population study included the sample of 760 subjects of both sexes (352 males and 454 females), aged 55-64, permitted to measure the serum IgE levels in relation to the presence or the absence of bronchial asthma symptoms. UATLD Questionnaire was used. The criterion of CB was generally accepted; BA criterion was the following: two positive answers to 4 questions: you have had an attack of breathing problems or wheezing or wheezing in the last 12 months. It was analysed logarithmic values of serum IgE. The patients were counselled by two doctors independently.

BA was found in 23.4% of the patients with CB and in 2.0% of the subjects without CB (p < 0.05). The geometrical mean of serum IgE was 3.4 ± 1.6 IU/ml in the patients with chronic bronchitis and 4.6 ± 1.6 IU/ml in the subjects with bronchial asthma (p = 0.001). In the patients with CB and coughing plus wheezing in the last 12 months IgE level was found lower: 4.3 ± 1.8 IU/ml (p = 0.05). According to clinical study the specificity of BA criterion was 93% and sensitivity was 71%. Prognostic value was calculated as 69%.
Asthma

> 21.7
> 103.5
> 40%
> 21% 
> 48%
> 3.0
> 169.6
> 58.3
> 81.7
> 166,0
> 4592
> 1696
> 2.1
> 2.5
> 3.0
> 3.6
> 5.3
> 5.1
> 3.7
> 5.1
> 3.8

<table>
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<tr>
<th>Year</th>
<th>Asthma admission</th>
<th>Hospital admissions in whole</th>
<th>% Asthma admissions</th>
<th>Increasing % of admissions related to 1988 year</th>
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<tr>
<td>1988</td>
<td>115</td>
<td>5564</td>
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<tr>
<td>1989</td>
<td>140</td>
<td>5702</td>
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<td>&gt; 21.7</td>
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<tr>
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</tr>
<tr>
<td>1991</td>
<td>209</td>
<td>5832</td>
<td>3.6</td>
<td>&gt; 81.7</td>
</tr>
<tr>
<td>1992</td>
<td>310</td>
<td>5892</td>
<td>5.3</td>
<td>&gt; 106.6</td>
</tr>
<tr>
<td>1993</td>
<td>306</td>
<td>5962</td>
<td>5.1</td>
<td>&gt; 166.0</td>
</tr>
<tr>
<td>1994</td>
<td>203</td>
<td>5453</td>
<td>3.7</td>
<td>&gt; 73.9</td>
</tr>
<tr>
<td>1995</td>
<td>234</td>
<td>4592</td>
<td>5.1</td>
<td>&gt; 103.5</td>
</tr>
<tr>
<td>Total</td>
<td>1696</td>
<td>45020</td>
<td>X = 3.8</td>
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Distinct seasonal fluctuation was noticed. For each of the years 1988 until 1995 a large autumnal increase in asthma admission occurred. The overall largest peak was in September-October when 343 pts (20%) from the whole group were hospitalized. A smaller peak occurred each year in January-February and April-May (17%). Seasonal pattern of status asthmaticus admissions was similar. During 8 yrs 165 pts (9.7%) had status asthmaticus, 41 pts (24.8%) in January-February and 39 pts (23.6%) in September-October. Due to asthma 19 pts (1.1%) died. Annual death rate was 25 per 10000. In conclusion: admission rates attributed to asthma showed upward trend through examined period for all ages and both sexes. Apparently steeper increase was until 1991 and than dramatically increased in 1992 and 1993. The observed increase may reflect an increase in prevalence or severity of asthma, a change in diagnostic criteria, therapeutic or nosologic practices. Seeking to explain dramatic increase we considered change in medical care leading to a shift of asthma patients from the community to hospital setting because of the shortness of anti asthma drugs during the two years of isolation of Yugoslavia.

CFTR — Prevalence, diagnostic features of respiratory involvement and clinical care in cystic fibrosis

Cystic Fibrosis (CF) is the commonest lethal recessive autosomal disease in Caucasian populations. The frequency of CF and CFTR gene mutations (espescifically of AF508 deletion) is variable in different countries. During last two years frequency of CF in Russian population has been studied. We found that CF af at 1 in 12 000 newborns. The major AF508 mutation was found in 58% chromos of CF patients among Russian population and 41% chromosomes af CF patients in Moscow.

<table>
<thead>
<tr>
<th>Russia</th>
<th>Moscow</th>
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</thead>
<tbody>
<tr>
<td>AF508/AF508</td>
<td>34%</td>
</tr>
<tr>
<td>AF508-</td>
<td>48%</td>
</tr>
<tr>
<td>AF508-</td>
<td>18%</td>
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The most common mutations in Russian population were different to those described in Europe. 1N303K, 2143delT, 2184insA, 0542X, W1282X, 3732X.