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99. Respiratory issues in primary care

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Prognosis of lower respiratory tract infections in elderly primary care patients – validation and optimisation of a prediction rule

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Background: Estimating prognosis is essential in the management of lower respiratory tract infections (LRTI), especially in elderly who more often have a complicated course.

Objectives: To validate and optimise a simple prediction rule (PR) to estimate the prognosis of elderly primary care patients with acute LRTI.

Methods: Patients aged ≥ 65 years ($N = 1,158$) visiting the General Practitioner (GP) with LRTI enrolled between October 2004 and May 2006 in a prospective observational study. A PR based on demographics and medical history [Bont, J. et al, ERJ 2007; 29(5)] was validated and optimised with data on signs and symptoms by multivariable regression analysis. The main outcome measure was 30-day hospitalisation or death.

Results: 110 patients (9.5%) had the combined outcome and 14 (1.2%) died. The original PR (PR1) discriminated reasonably well in the validation cohort (AUC 0.73). The optimised PR (PR2) discriminated better (AUC 0.81) and included the following additional variables: general malaise, absence of increasing cough, absence of signs of upper respiratory tract infection, diminished consciousness, high temperature and a high pulse rate. PR2 identified more patients with a low risk (probability of the outcome of $< 3\%$; score ≤ 8 points), that is 55% compared to 38% with PR1. It was also better at selecting a high risk population (probability of $> 30\%$; score ≥ 14 points).

Conclusions: A simple prediction rule based on demographics and medical history can be used to select low and high risk patients with a LRTI in primary care. The optimised PR, including also signs and symptoms, is superior yet should be validated in another cohort.

P830

Spirometry is associated with management of COPD patients in five Latin American cities: PLATINO study

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PLATINO is a population-based study to measure prevalence of COPD in five Latin American Cities: San Pablo (Brazil), Mexico City (Mexico), Montevideo (Uruguay), Santiago de Chile (Chile) and Caracas (Venezuela). Data from this study show differences in the prevalence between cities (7.8%–19.7%), underuse of spirometry, and inaccurate diagnosis. Our objective was to assess factors associated with treatment in COPD patients.

Results: Of 5529 subjects with self-reported data on treatment, 758 were diagnosed as COPD by FEV1/FVC < 0.7 post-bronchodilator, 19.9% of which had ever received spirometry. Among individuals with airflow limitation, only half of smokers or former smokers had received medical counseling to stop smoking in their lifetime and 24.7% received respiratory drugs in the last year. Of 86 individuals with previous medical diagnosis, 52.2% had a former spirometry, up to 69% of smokers or former smokers had received medical counseling to quit, and 75.6% were on respiratory drugs, 43% on inhalers and 36% on bronchodilators. Inhaled steroids were used in 13.5% of severe patients. There were considerable differences in use of flu vaccination, mucolytics and inhalers among the cities. Results from a regression model examining factors associated with treatment showed a strong association with previous spirometry for both smoking counseling (OR 2.6; 95% CI: 1.25–3.37) and use of respiratory drugs: bronchodilators (OR 2.3; 95% CI: 1.33–3.99), and any steroids (OR 5.34; 95% CI: 7.75–16.34).

Conclusion: our study shows that spirometry is not only a diagnostic tool, but one of the most important factors associated with more rational treatment of COPD.

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Increased prevalence of obstructive airways disease (OAD) in patients with ischemic heart disease (IHD) and hypertension (HT)

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Recent studies have shown a strong association between spirometric indices (FEV1 and FVC) and risk of cardiovascular mortality in patients IHD. We have earlier demonstrated that subjects with HT had increased prevalence of OAD. The aim

of this study was to determine the prevalence of OAD in patients diagnosed with IHD and HT, and compare that with the prevalence of OAD in healthy population. **Methodology:** 122 patients with diagnosed ischemic heart disease and hypertension (mean age 53 yrs) and 135 healthy subjects (mean age 49 yrs) were recruited in this study. After obtaining demographic and clinical data, spirometry was performed using MIR Spirolab-II (Italy) according to ATS/ERS guidelines. FEV1/FVC $< 70\%$ was used to make a diagnosis of OAD.

Results: The prevalence of OAD in the healthy population was 3%, while that in patients with IHD was 20%, in patients with hypertension was 8% and in patients with IHD and hypertension was 13.5%. Use of beta-blockers was not associated with OAD [OR – 0.75 (0.19 – 2.83), $p = 0.076$]. Presence of IHD was independently associated with the presence of OAD [OR: 4.01 (1.48 – 10.92), $p = 0.002$].

Conclusions: This study highlights a significantly increased prevalence of OAD amongst patients with IHD and HT. Patients with IHD should routinely undergo spirometry to detect presence of underlying OAD.

P832

Ethnicity and asthma care: qualitative study of the beliefs of general practitioners and Asian parents

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Background: Policies to address inequalities aim to ensure that services are responsive to the needs of different groups, including the provision of services that are culturally sensitive. It is often assumed that the latter is achieved when there is ethnic similarity of patient and provider but this has rarely been examined. **Aim:** To compare general practitioners' cultural assumptions and the beliefs of parents of Indian and Pakistani origin with a young child with asthma.

Methods: Semi-structured interviews were conducted with parents and GPs in South-west London. 16 Indian and Pakistani parents of children aged 3–9 years recruited from hospital asthma outpatient clinics and 20 general practitioners (13 of Indian or Pakistani origin) from local practices. Interviews were transcribed and analysed thematically.

Results: GP's assumptions, including GPs of Asian origin, were often at variance with parents' own beliefs and practices, including notions of parents' lack of familiarity with asthma and the belief that they perceived asthma as a stigmatising condition. Most GP's felt parents would be unable to understand information about asthma, although parents were often frustrated by the lack of information they received.

Conclusions: This study indicates that shared ethnic grouping of health professionals and patients does not necessarily imply shared cultural understandings, and demonstrates the need to move from simplistic notions of ethnic similarity and difference to acknowledge the complex variations and heterogeneity within broad census categories.

P833

Family doctors perceptions about obstructive sleep apnoea, in Portugal

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Background: Obstructive sleep apnoea (OSA) has been underdiagnosed and inadequately controlled. This has been attributed to several factors, including doctor's performance and the organization of services.

Aims: To identify the perceptions of a sample of Portuguese family doctors (FD) about the magnitude of the problem, the potential for prevention and control, their educational needs, current professional practices and alternatives for better care.

Methods: A questionnaire was sent to a sample of 120 doctors identified as key-persons all over the country. Quantitative and qualitative data analyses were performed.

Results: 106 FD answered to the questionnaire. 88% qualified OSA as a public health problem and 91% agreed that sleep disorders are a major problem in Portugal. They estimated that only one third of FD evaluate, inform and educate their patients concerning sleep health. 38% of respondents seem not to be aware of the best evidence on currently available treatments. Concerning the improvement of diagnosis at primary care, 73% agreed with the practice of nocturnal oximetry and 59% agreed with nocturnal cardiorespiratory studies at their patient's homes. Also the majority (60%) agreed to initiate CPAP and follow-up treatment in co-ordination with secondary care. Almost all (99%) identified educational needs and only 15% declared to have had education on OSA. A list of suggestions was identified to improve patient care.

Conclusion: Portuguese FD are receptive to a greater participation in the care to their patients with OSA. Considering current primary care reform, these results may encourage health policy decision makers to implement a *population-based disease management* approach of this syndrome.

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P834**Reliability of inhalation therapy through a multidose dry powder inhaler**D.T. Nguyen¹, U. Petzold¹, U. Munzel¹, J. Maus¹. ¹Clinical Development, MEDA Pharma GmbH & Co. KG, Bad Homburg, Germany

Background and Objective: Clinical studies proved therapeutic equivalence of budesonide, formoterol, and salbutamol delivered via NOV (Novolizer[®]) to reference products TUR (Pulmicort[®] Turbuhaler[®]), AER (Foradil[®] Aerolizer[®]) and SUL (Sultano[®] Dosieraerosol). The present work compares reliability of dosing among these products.

Methods: *In-vitro* fine particle dose (FPD) and *in-vivo* lung deposition of budesonide were assessed using a multi-stage liquid impinger and gamma scintigraphy, respectively. For formoterol and salbutamol products pharmacokinetic (PK) data were applied.

Results: NOV lowered variability of budesonide FPD by 34%-86% at flow rates of 30-100 l/min and variability of the lung deposition by 33% at a target flow rate of 60 l/min compared to TUR. NOV also reduced variability of formoterol AUC_{0-∞} and C_{max} by 17% and 30%, respectively, compared to AER and the variability of salbutamol plasma levels at 30 min p.a. by 44% compared to SUL. Individual formoterol PK time profiles related to C_{max} were shown to be more homogeneous after inhalation via NOV than via AER (see the figures).

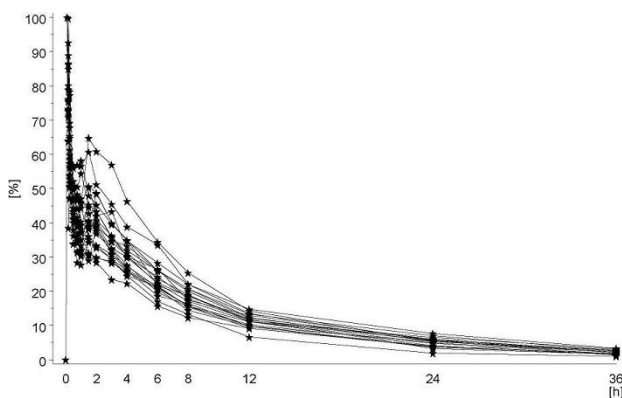


Fig. 1. Treatment = NOV.

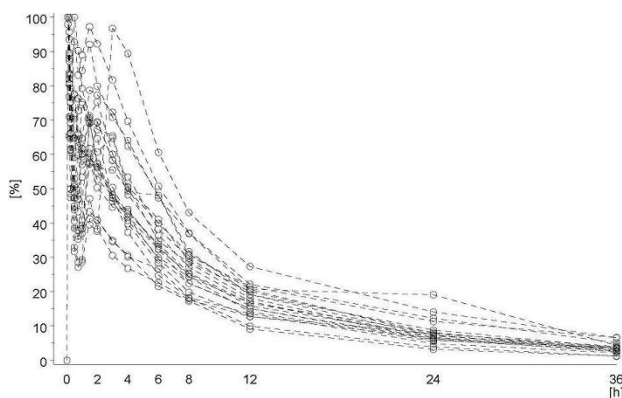


Fig. 2. Treatment = AER.

Conclusion: NOV (Novolizer[®]) is likely to improve reliability of inhalation therapy.

P835**Educational program for moderate persistent asthma in a routine medical visits outpatient clinic**L. Angelini¹, P. Ribeiro¹, M. Ribeiro¹, A. Cukier¹, R. Stelmach¹. ¹Pulmonary Division, University of Sao Paulo Medical School, Sao Paulo, Brazil

Introduction: A key component of many asthma consensus is the recommendation of patient's education program (EP) and regular medical visits. The best EP it's still a controversy and patient adherence is a major limiting factor.

Objective: To measure the effect of expositive EP applied during routine medical visits.

Methods: EP was applied during visits in an outpatient clinic every 4 months during 12 months. At each visit moderate persistent asthmatics received the same classes of asthma pathophysiology, triggers and their avoidance, medication treatment and device training. Knowledge was evaluated with standard questionnaires applied before and after classes. Emergency department visits, oral steroid burst times and work/school lost days were measured as clinical severity markers.

Results: 164 patients were included and 120 were seen at least in 3 visits. Patients knowledge increased at each consultation ($p < 0.001$) (see table). 51 returned after one year of EP ending and showed a higher value ($p < 0.05$). Clinical control increased too ($p < 0.05$).

	V1	V2	V3	After 1 year
Knowledge	0.23	0.36	0.45	0.63
Severity	5.1	3.2	3.9	2.3

Conclusion: EP during regular medical visits give and maintain a persistent asthma knowledge and add the disease control.

P836**Evaluation of the relationship between health-related quality of life and asthma control**A. Williams¹, N. Gul², L. Frith². ¹Global Health Outcomes, GSK R&D, Greenford, United Kingdom; ²Biostatistics and Programming, GSK R&D, Greenford, United Kingdom

Background: Aim of treatment is to achieve asthma control and improve health-related quality of life (HRQL). There is no consensus on the best approach to measuring control. The Asthma Control Questionnaire[™] (ACQ) and the Asthma Control Test[™] (ACT) are two of the instruments available.

Methods: Post-hoc analysis of data from a global study, the 1-year Gaining Optimal Asthma Control (GOAL), was completed. An algorithm was applied to map an ACT score from the ACQ score available in the GOAL data set. The sensitivity, specificity and predictive values of the mapped ACT scores were assessed against the GOAL control definition, and correlation with the AQLQ and control over time were evaluated.

Results: Sensitivity and specificity of the mapped ACT scores were 87% and 71% respectively, with negative and positive predictive values of 70% and 88% respectively. Correlation with the AQLQ overall score was high ($r=0.832$), with mean AQLQ scores of 6.5 (ACT mapped score ≥ 20 , well controlled), 5.5 (ACT mapped score 15-19, not well controlled) and 4.0 (ACT mapped score ≤ 14 , poorly controlled).

Conclusion: Sensitivity, specificity and predictive values of the mapped ACT score against the GOAL control definition were within accepted limits. Results support that asthma control has a strong relationship with HRQL and achievement and maintenance of control over time.

Asthma Control Status over Time

	Mapped ACT score, End Phase II*		
	≥ 20	15-19	≤ 14
Mapped ACT score ≥ 20	88	10	2
Mapped ACT score 15-19	43	45	12
Mapped ACT score ≤ 14	18	31	51

Phase I dose titration until total control or max dose reached; Phase II maintenance at final Phase I dose

P837**Asthma programme in Finland: the quality of primary care spirometries is good**L. Tuomisto¹, V. Jarvinen², J. Laitinen³, M. Erhola⁴, M. Kaila⁵, P. Brander². ¹Pulmonary, Seinajoki Central Hospital, Seinajoki, Finland; ²Clinical Physiology, Hospital District of Helsinki and Uusimaa, Hyyinkaa, Finland; ³Clinical Physiology, Koskiklinikka, Tampere, Finland; ⁴Administration, Municipal Joint Union for Public Health, Hameenlinna, Finland; ⁵Paediatric Research Centre, University of Tampere, Tampere, Finland

Background: Spirometry is commonly used in primary care setting. The quality of spirometries has been found variable and continuous education has been carried out.

Aim: To assess the quality of primary care spirometries by visual inspection and the quantity of clinical information of the spirometry flowsheets in 2001, seven years after the launch of Finnish Asthma Programme (Haahtela et al *Clin Exp Allergy* 1996;26:1-24)

Methods: Retrospective medical record audit of flow-volume spirometries referred to three pulmonary clinics against developed five quality criteria (start without delay, steep upslope, sharp PEF, no coughing and full exhalation). Spirometry curves were referred as an attachment to adult asthma-related referral letters (Tuomisto et al *J Eval Clin Pract* 2007;13:50-54). Spirometry curves studied comprised 80% (n=489) of all curves received. Bronchodilation reversibility test was included in 78% of the spirometries. The quality assessment of both curves

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(n = 868) was made by two experienced clinical physiologists. Clinical information included in the spirometry flowsheets was collected.

Results: Quality was found good in 78% of prebronchodilation curves and in 80% of postbronchodilation curves. Sharp PEF and exhalation of the entire volume seemed to be the critical points of the measurement. Inter-rater reliability of the curve assessment was found moderate. Data on location of the spirometer (63%), use of respiratory medication (74%) and comments of the patient co-operation (68%) were lacking most often.

Conclusions: The quality of primary care spirometries was better than expected according to visual assessment of the curves. Adequate clinical information would further improve the quality.

P838

Impact of the combination therapy: inhaled corticosteroid and long-acting beta agonists in the prescription pattern of inhaled corticosteroids

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Inhaled corticosteroids (ICS) are prescribed to prevent acute exacerbations of asthma or bronchitis. There three type of ICS: Beclometasone (BEC), Budesonide (BUD) and Fluticasone (FP). These ICS can be prescribed alone or in combination with long-acting beta-2 agonists (CS + LABA).

Our 250,000 inhabitant Health Department has an integrated computerised prescription system since 1999: GAIA.

Aim of the study: Describe the prescription pattern of ICS during the period 2000–2005 and the impact of inhaled combination therapy

Methodology: Data was collected from GAIA: Integrated Management of Drug Prescription computerised programme. This system registers all medication prescription in our Health Department by therapeutic group and generic group and Daily Dose per Inhabitant (DDI) and total number of prescriptions. DDI indicates how many patients are taken a defined therapeutic drug in a defined area and period of time.

Results: Total DDI of ICS in 2000 and 2005 was 51.5 and 55.6. Inhaled BEC, BUD and FP in 2000 vs 2005 were respectively: 10 vs 0.1; 17.0 vs 10.3 and 24.5 vs 45.2. The proportion of MDI prescribed in 2000 was 72% and in 2005 was 20%.

The number of prescription of inhaled CS alone and inhaled combination CS + LABA in 2005 was 31130 and 11328 and in 2005: 16120 and 42907

Percentage of FP prescribed in 2000 was 47.5% and in 2005 was 81.3%.

Conclusion: Similar Daily Doses per inhabitant of ICS are prescribed in 2000 and 2005, however nowadays, FP is the most prescribed in our Health Department mainly because of the use of inhaled combination therapy: CS + LABA

P839

Peak expiratory flow (PEF) values obtained by the new EU scale (EN 13826) Wrights peak flow meter is comparable to those obtained by a pneumotach and turbine-based spirometer

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The earlier scale used on the Mini Wrights Peak Flow Meter over-read PEF values in the mid-range by up to 30%, and under-read PEF values in the low and high ranges. The new EU scale (EN 13826) has been recently introduced to improve accuracy of PEF readings. There has been no study in human subjects to validate the accuracy of this new EU scale Peak Flow Meter. The aim of this study was to compare the PEF values by the new EU scale Wrights Peak Flow Meter with that obtained from Pneumotach and Turbine-based spirometers obtained in human subjects.

Methods: 96 healthy and asthmatic male and female subjects between 12–70 years, who volunteered to participate in this study performed three PEF maneuvers in each of the Wrights Peak Flow Meter (W) (new EU scale), Pneumotach-based (P) (Vitalograph, UK) and Turbine-based (T) (Spirolab II) spirometers in a pre-determined randomization sequence. The highest PEF values recorded were used for comparison between devices.

Results: The table shows mean differences (% change) between the Spirometer-based and Wrights Peak Flow Meter readings.

Conclusion: PEF values obtained by the new EU scale Wrights Peak Flow Meter are comparable to those obtained by Pneumotach and Turbine-based Spirometers at low, mid and high range values.

Mean Differences(% change) between the Spirometer-based and Wrights Peak Flow Meter readings.

	0–800 L/min	0–300 L/min	300–500 L/min	> 500 L/min
T vs W	–7.9 (–2.1%)	+3.9 (+1.9%)	0.8 (+0.2%)	–35.4 (–6.0%)
P vs W	+8.4 (2.3%)	+15.6 (8.2%)	+20.2 (+5.4%)	–16.0 (–2.8)

P840

The use of antibiotics in primary care: a cross-sectional survey of a rural city in South Turkey

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Background: The highest rates of antibiotic prescriptions are in primary care, and respiratory tract infection is the most common indication.

Research Question: What is the extent of antibiotics use and which determinants do influence this?

Material and Methods: Fifty six Medical PC doctors working in a rural city participated in the study (response rate=56%). The questionnaire included open and likert type (1–5) questions.

Results: Doctors were 32.8±5.91 (23–56) years old. Do have 50 (10–120) patient encounters a day and prescribe 40 (8–50) recipes a day.

The most frequent complaints were cough, fever, sore throat (n=40, 71%; n=30, 54%; n=30, 54% respectively) and infectious diagnoses were upper respiratory tract infection (URTI), lower respiratory tract infection, urinary tract infection (n=50, 89%; n=35, 63%; n=31, 55% respectively).

Antibiotics like cefuroxime, amoxicillin/clavulanate, penicillin, ampicilline/sulbactam, clarithromycine (n=35, 63%; n=32, 57%; n=25, 45%; n=23, 41%; n=20, 36% respectively).

Frequent need [2(1–3)] for CME in infectious disease [2(1–3)] has been expressed. Preparation of guidelines for Antibiotics Prescription in primary care would sometimes [2(1–5)] support the medical practitioner. Patients frequently [2(1–3)] asked for antibiotics and they rarely [4(2–5)] followed this suggestions.

Discussion: URTI's were frequently diagnosed and a growing use of the newer (ie, broad-spectrum) antibiotics to the detriment of the older (narrow-spectrum) has been observed. More emphasis on providing CME, preparing guidelines and supporting pc doctors with laboratory services might help to promote rational pharmacotherapy in Turkish PC.

P841

Smoking habits after sex in Patras, Greece

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Aim: One of the usual habits of smokers is smoking after sex. Our aim was to find out if there is a true to all this and the behavior of their partners.

Method: Anonymous questionnaire answered by 160 smokers (SM). Equally divided 80 male and 80 female, aged 29 (SD±6.2) years old. 68.75% of their partners were also smokers (SP) and 31.25% were non-smokers (NS). From NS, 24% were ex-smokers (EXS) and 76% were non-smokers for life (NSL)

Results: Analysis of questionnaire showed that all of the smoking couples SM-SP were smoking after sex at least 2 cigarettes. 94% from the remaining SM smoke after sex. 66.66% EXS allow smoking near them and smokes irregularly. 52.63% NSL also allow smoking near them and become passive smokers.

Conclusions: The prevalence of smoking was extremely high after sex regardless of smoking habits among couples.

P842

Physicians or prediction rules; who is better at predicting prognosis?

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Background: Prediction rules (PRs) estimating prognosis in patients with lower respiratory tract infections (LRTI) have been developed and used to tailor management decisions. However, it is unknown whether PRs are superior to the assessment of physicians.

Objectives: To compare prognoses estimated by PRs and general practitioners (GPs) in elderly patients with LRTI in primary care.

Methods: Patients aged ≥ 65 years (N = 1,158) visiting the GP with LRTI enrolled between October 2004 and May 2006 in a prospective observational study. A PR based on demographics, medical history, signs and symptoms (PR1) was compared with the prognosis estimated by GPs. Prognosis was defined as 30-day hospitalisation or death. Next, analyses were repeated with mortality as the single outcome and compared with the CRB65 score (Confusion, high Respiratory rate, low Blood pressure, age ≥65 years) which is used in the BTS guidelines.

Results: 110 patients (9.5%) had the combined outcome and 14 (1.2%) died. GPs and PR1 discriminated equally well between patients with low or high risk of the combined outcome (AUC 0.81). GPs correctly identified 16% of the total population as low risk which was defined as a probability of the combined outcome of <3%, compared to 55% by PR1. For high risk patients, defined as a probability of >30%, these numbers were 16% and 13%. The AUC with mortality as the single outcome, was 0.91 for GPs, 0.87 for PR1 and 0.82 for the CRB65 score.

Conclusions: GPs are competent in selecting low risk patients, but they recognize only a small proportion. Therefore, prediction rules may help GPs in selecting

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more patients with a good prognosis. On the other hand, GPs are as skilled as PRs in selecting high risk patients.

P843

Pancoast-Tobias syndrome as first clinical expression of lung cancer: its frequency among the patients of a primary care practice group in a one year survey

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Background: Pancoast – Tobias syndrome is usually the consequence of a malignant neoplasm of the pulmonary apex. Its clinical features might be sometimes the first manifestation of a lung cancer however the diagnosis is often delayed.

Aims and Objectives: To evaluate the rate of occurrence of Pancoast – Tobias syndrome as first clinical expression of a lung cancer and the interval between the first consultation and the certain diagnosis.

Methods: One-year retrospective study of data from the consultation registers and medical files of six family physicians. We followed firstly the total number of lung cancer new cases, then the number of patients subsequently confirmed with Pancoast – Tobias syndrome as first manifestation of the disease. We also looked at those patients having an initial clinical diagnosis of cervicobrahial neuralgia or scapulohumeral periarthritis, the period of time till the certain diagnosis and the smokers' percentage.

Results: From 15 lung cancer new cases, 5 (33.3%) debuted as cervicobrahial neuralgia or scapulohumeral periarthritis and 4 (20.6%) were treated consequently. The average time between the first consultation and the cancer diagnosis was 6.5 months. All patients were smokers. Four doctors have met similar cases in their professional experience but only two in the previous year and it appeared to be a correlation between this observation and the moment when the patients were referred to the pneumologist.

Conclusions: Even if is considered uncommon, the Pancoast – Tobias syndrome should be kept on mind as possibly first sign of a lung cancer, especially in smokers.

P844

Future prospects for improved influenza vaccines

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Annual influenza vaccination to reduce influenza-associated disease and complications in at-risk populations has been very effective over the last decades. However, the efficacy of influenza vaccines can be diminished in some at-risk populations, such as the elderly, due to their compromised immune system. For these groups more immunogenic influenza vaccines are being developed as is also done as response to the threat of an emerging influenza pandemic. Vaccines formulated with new and older adjuvants to enhance the immune response are currently being tested in clinical trials for epidemic and pandemic influenza vaccines. Also alternatives to the route of intramuscular administration are being explored to improve efficacy of influenza vaccines. However, the interpretation of study outcomes is very much complicated by various factors like intrinsic variability of the influenza viruses and epidemics, insufficient validated markers of efficacy, uncertainties of pathogens causing influenza-like illness, and heterogeneity in serological assays.

A different way to improve influenza vaccine efficacy is to increase vaccination rates. Recent studies have demonstrated that in Europe, less than 33% of people that are recommended to be annually vaccinated, are in fact receiving the vaccine. To reduce influenza-related morbidity and mortality in at-risk groups, the World Health Organization set a goal to reach at least 75% vaccine coverage rate for the elderly by year 2010.

Increasing coverage rates of current influenza vaccines and new influenza vaccines with improved efficacy and will importantly contribute to further increase levels of prevention of epidemic influenza-associated disease and deaths as well as to global pandemic preparedness.

P845

Changes in inhaled anticholinergic prescription pattern in a Spanish health department

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Introduction: The prevalence of COPD and asthma is increasing. Short-acting anticholinergic (SAAch) and long acting anticholinergics (LAAch) are used for the treatment of both conditions. Our 250000 inhabitants Health Department has an Integrated Management of Drug Prescription computerised programme: GAIA. This system registers all medication prescribed in our Health Department collecting data on all prescribed medication by therapeutic group, generic group and marketing name.

Aim of the study: Variation on the pattern of inhaled anticholinergic prescription: Number of prescriptions and Daily Dose per Inhabitant (DDI) as well as cost from 2000 to 2005.

Methodology: Data was collected from GAIA: Integrated Management of Drug Prescription computerised programme This system registers all medication prescribed in our Health Department collecting data on all prescribed medication by therapeutic group and generic group as well as DDI, and cost. DDI is an shows how many patients are taken a defined therapeutic daily dose of one drug or therapeutic group of drugs in one area in a specific period of time.

Results: The total number of prescriptions and cost of SAAch and LAAch in euros in 2000 was: 26830 and 218951 € and in 2005: 40669 and 911555 €. LAAch were not prescribed in 2000 but in 2005 represent the 28% of number of prescriptions and the 70% of the total annual cost. DDI of SAAch had 30% reduction in this period: 46.3 in 2000 and 31 in 2005

Conclusion: Prescription pattern of inhaled anticholinergics has changed from 2000 to 2005 with a reduction of the number of SAAch prescription and an increase of LAAch. The inhaled anticholinergic cost has had a four-fold increase in that period.

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Is breathlessness the same in health and disease?

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Healthy subjects are familiar with the sensation of breathlessness after exertion; whether this is similar in disease is unclear. 202 patients [COPD (65), asthma (60), pulmonary fibrosis (PF) (41) Idiopathic Hyperventilation (IH) (36)] and 23 controls completed a standardised 45 item questionnaire (Elliott 1991). Patients described breathlessness at rest and exercise, controls exercise only. Descriptors selected were assessed using principle components analysis (promax rotation). Based on correlations between responses to descriptors, this analysis extracts a small number of components representing most of the variability in responses and relate to underlying processes associated with breathlessness. 3 components of breathlessness were identified on exercise explaining 61.3% of variance (KMO=0.97, Bartlett's $p < 0.001$). 1: unpleasant sensations in the chest (50.2%) 2: emotion (7.6%) 3: air hunger (3.5%). There were significant differences in all components between the 5 subject groups (unpleasant sensations $p = 0.001$, emotion $p < 0.001$, air hunger $p < 0.001$, ANOVA); post hoc-analysis showed these differences to be between controls and disease groups. At rest, 3 components were identified, explaining 65.3% of variance (KMO=0.96, Bartlett's $p < 0.001$). 1: unpleasant sensations in the chest (52.6%) 2: emotion (9.5%) 3: air hunger (3.2%). There were no significant differences between the factor scores for the disease groups. Sensation of breathlessness in chronic respiratory diseases is dominated at rest and exercise by unpleasant sensations in the chest. The sensations are similar across disease groups including subjects with IH where lung function is normal, but significantly different from those experienced by healthy controls on exertion.