2509 Meta-analysis of the long-term effects of inhaled corticosteroids in chronic obstructive pulmonary disease (COPD)

P.M. van Grimbergen, C.P. van Schuylen, J.P. Derese 1, H.A.M. Kerstjens 2, T.E.J. Renkema 2, D.S. Postma 2, T. Simuovvski 2, P.C.M. Pasker-de Jong 1, P.N.R. Dekhuijzen 4, C. van Weel 1, Dept. of General Practice and Social Medicine, University of Nijmegen, The Netherlands, 1Dept. of Epidemiology, University of Nijmegen, The Netherlands, 2Dept. of Pulmonology, University of Groningen, The Netherlands, 3Dept. of Pulmonology, Hospital Pitié-Salpêtrière, Paris, France

The role of inhaled corticosteroids (ICS) in the long-term management of COPD is still unclear. Therefore, we performed a meta-analysis of the three two-year studies published on this subject (Kerstjens et al: N Engl J Med 1992; 327: 1413–9, Derese et al: Am J Respir Crit Care 1995; 151: A463, Renkema et al: Chest 1996; 109: 1556–62. Patients with “asthmatic features” were excluded by analyzing the original data. The effect on FEVi was assessed by a multiple repeated measurement technique in which time and drug effects were investigated. 95 (of the original number of 140) Patients treated with ICS (81 with 1500 µg beclometasone, 6 with 1600 µg budesonide, and 8 with 800 µg budesonide/fluticasone) were included. 88 Patients treated with placebo were included (of the initially 144 patients). No baseline differences were observed (mean age 61 years, mean FEVi = 45±% predicted). Worst-case of the disease was the drop-out reason in 4 patients of the ICS group vs. 9 of the placebo group (p = 0.11). The estimated two-year difference in the postbronchodilator FEVi was +0.0001L (95% confidence interval (c.i.) +0.010L to +0.017L) in the ICS group versus placebo, the postbronchodilator FEVi showed a difference of +0.083L (95% c.i. +0.003L to +0.163L). In conclusion, this meta-analysis showed beneficial long-term effects of ICS on the FEVi difference in the prebronchodilator FEV1 was +0.090L (95% confidence interval). The results of this meta-analysis showed beneficial long-term effects of ICS on the FEVi difference of +0.083L (95% c.i. +0.003L to +0.163L). In conclusion, we speculate that our 34 NOD patients are a subgroup, with an earlier stage of their disease, leading progressively to severe chronic hypoxemia: bronchial obstruction and Pack Years are the risk factors for the worsening diurnal Pa02.

2510 When to perform arterial blood gases (ABG) in stable chronic obstructive pulmonary disease (COPD)?

N. Roche, B. Herer, T.C. Chinet, S. Labrunc, G.J. Huchon, Serv. de Pneumologie* Hôpital Ambroise Paré, F-92104 Paris, France

In patients with stable COPD, there is no agreement on the FEVi threshold above which ABG are unnecessary to identify patients who would require supplemental O2 therapy. The American Thoracic Society and French guidelines recommend to perform ABG when FEVi is less than 50% predicted; whereas the European Respiratory Society recommend to perform ABG when FEVi is less than 70% predicted. Several studies have shown a poor correlation between spirometry and Pa02. We studied data from 60 stable COPD patients to determine the baseline FEVi threshold above which patients exhibit no severe hypoxyemia (as defined by Pa02 <60 mmHg). Spirometry and ABG were performed on the same day in each patient, at least three weeks after the last exacerbation.

There was a weak but significant correlation between FEVi and Pa02 (r = 0.13, p = 0.005). The correlation between FEVi1 and Pa02O2 was stronger (r = 0.25, p = 0.00005). In all patients whose FEVi was >55% predicted, Pa02 was >60 mmHg. These data suggest that 55% would be an acceptable FEVi threshold above which measurement of ABG is not necessary in stable COPD patients.

2511 Survey of prescription of long term oxygen therapy outside guidelines

A. Thayrad, D. Veule, E. Chailloche, J.C. Cardinad, Group d’Etude Observationnelle CMTS, ANTADIR, BH St Michel, 75006 Paris, France

Guidelines for the prescription of long term oxygen therapy (LTOT) have been published but many surveys have found a large proportion of patients prescribed LTOT to have arterial oxygen pressure above guideline thresholds. We have surveyed prescribers of LTOT to patients enrolled in the ANTADIR (French National Respiratory homecare network) Observatory. 2081 questionnaires were sent to prescribers identified by 20 regional associations asking if they ever prescribed LTOT to stable COPD patients with Pa02 > 60 mmHg and asking them to mark any of 9 suggested situations or “other reason” for such prescription, 654 replies have been received. The mean age of doctors was 43.5 ± 7 yr. and 81% were respiratory physicians. 1176/44 (78.8%) had never prescribed LTOT at Pa02 ≥ 60 mmHg. The remaining 557 marked a median of three options. 154 marked 5 options or more. The commonest motives for prescription outside guidelines were "nocturnal desaturation" (38%), "pulmonary hypertension" (33%), and "recurrent clinical right heart failure" (34%). 172 (31%) doctors ticked at least these three situations together. In contrast the options of prescription "in response to demand by the patient" or "familial" were only chosen 40 times. 309 prescribed for "effort desaturation", 215 for "dyspnea", 139 for "repeat hospitalization", 127 for "poly-cythaemia". We conclude that physicians prescribe LTOT outside guidelines for objective rather than subjective reasons of perceived severity of disease and trials of efficacy of LTOT in these circumstances are required.

2512 Nocturnal oxygen-hyperoxia desaturation (NOD) as predictor of long-term oxygen therapy (LTOT)

M. Rizzi, A. Bellone 1, M. Greco, A. Andreoli, M. Bamberger, M. Sergi, Servizio di Pneumologia Interna, Ospedale Sacco, Milano; 1Servizio di Fisiopatologia Respiratoria e Incentrogenesi, Ospedale Rho-Passirana, Italy

NOD often occurs among COPD patients with daytime Pa02 < 60 mmHg, and our aim was to evaluate the outcome of these subjects.

Methods: 210 COPD were observed from January 1991 to December 1995 with chronic severe hypoxemia (Pa02 50.8 ± 6.5 mmHg) treated with LTOT (LTOT subjects) and 34 with NOD, assessed by 15% of the recorded time with Sa02 < 90 and diurnal Pa02 64 ± 7 mmHg (NOD subjects).

Results: We compared age and FEVi of LTOT subjects and NOD subjects (Student’s t test, level of significance p < 0.05). NOD subjects compared to LTOT subjects were younger (64 ± 3 vs 70 ± 0.4 yrs; p = 0.005), had FEVi higher (50 ± 2.7 vs 38.6 ± 2.7% predicted; p < 0.0001). During follow-up, daytime Pa02 in 1034 NOD subjects fall to values that required LTOT: these patients showed, compared to other 24 NOD subjects, Pa02% significantly reduced (42 ± 7 versus 56.6 ± 2%, p < 0.0001) and greater Pack Years (58 ± 15 versus 35 ± 13; p < 0.0001) while systolic blood pressure (123 ± 14 versus 110 ± 13; p < 0.001).

Conclusions: We speculate that our 34 NOD patients are a subgroup, with an earlier stage of their disease, leading progressively to severe chronic hypoxemia: bronchial obstruction and Pack Years are the risk factors for the worsening diurnal Pa02.

2513 Assessment of domiciliary oxygen therapy effectiveness by means of arterial blood gas analysis at home and long-term oximetry in patients with COPD


Aim: 1. To assess if domiciliary oxygen therapy (DO) in COPD patients, is effective to reach, breathing oxygen, a resting Pa02 > 60 mm Hg and a CTO2 (percentage of time spent with Sp02 < 90%) while breathing oxygen <15%. 2. To assess the cause of DO failure: Malfunctioning oxygen delivery system (MODS), Insufficient prescribed oxygen dose (IOD), Patient’s mistake (PM), or Mixed reasons (MR). 3. To analyse the sensitivity of long-term home oximetry in detecting patients with a resting, breathing oxygen, Pa02 > 60 mm Hg.

Methods: 73 clinically stable COPD patients with chronic respiratory insufficiency, without other heart, pleural, lung or thorax notable pathologies that have been using DO for at least 1 year (55 concentrators, 8 cylinders and 1 liquid oxygen system) were consecutively recruited from referral control of 5 Hospitals.

Interventions and Measurements: Arterial blood gases determined at rest, breathing oxygen at patients’ home and breathing room air in the hospital. Technical check of oxygen sources using a gas analyzer and a precision rotameter. Oximetry recorded during the oxygen therapy time, considering two different periods: “day with oxygen (DOX)” and “sleep with oxygen (SOX)”.

Results: (1) 9 patients (12.3%) of 73 studied were excluded because they had a resting room air Pa02 > 60 mmHg. (2) 29 patients (45.3%) of 64 with a resting room air Pa02 < 60 mmHg, were poorly controlled with their DO: 13 (20.3%) showed a resting, breathing oxygen, Pa02 < 60 mm; 16 (25%) had a CTO2 > 15% during DOX and/or SOX. (3) 26/73 (36%) oxygen delivery systems supply flows lower or 75% of flow indicated on their caudalimeter. 54/55 concentrators deliver oxygen with concentration within ± 2% and 10 liquid oxygen cylinders and 10 liquid oxygen systems were unsatisfactory control of hypoxemia in 45% of COPD patients with DO studied.

Conclusions: (1) The insensitive oxygen flow by MODS, IOD, PM or MR produce unsatisfactory control of hypoxemia in 45% of COPD patients with DO studied. (2) The long-term oximetry is an adequate method to evaluate the effectiveness of DO. It should be used systematically.