Inspire

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FIRST WORD

The date for our winter meeting has been set for 21st - 23rd January 1999, venue Doncaster Racecourse. As a result of the massive logistical arrangements involved with the 25th anniversary conference in Birmingham we have employed the services of Universal Conference Consultants to organise the 1999 meeting. You may have already received the conference flyer and a questionnaire concerning the topics you most want to hear about. Please return these as soon as possible to ensure we are able to arrange a conference that will be popular with everyone.

The European Parliament has finally passed the bill to ban tobacco advertising throughout Europe. The vote took place in Strasbourg on May 13 -14th, with 314 MEP's voting in favour of the ban, 211 against and 25 absentions. This has to be good news for everyone working in respiratory medicine. Anything which will act to stem the growth in smoking has to be welcomed.

Please keep your letters, comments and articles rolling in to INSPIRE. It is important to keep our communication channels open and busy so that the ARTP can be responsive and pro-active in your interests. Please let me know your concerns about the future of respiratory function in the ever changing NHS. Additionally we are always open to ideas and suggestions concerning practice, developments, training and gradings. Write to me:

Sue Revill
The Editor, INSPIRE
Department of Respiratory Medicine
Glenfield Hospital
Leicester LE3 9QP

Membership Update

A report from membership secretary Steve Scholey

Number of registered members 385, of these 120 have not yet renewed this years membership. If you do not act quickly this will be your last communication from the ARTP. There are 18 members who renew by standing order and have not increased the amounts payable to the current fee. I have sent you reminders in the past and will do so again shortly, unless I receive a cheque for the balance in the meantime. Thank You.

FEES: Following the 1998 AGM membership fees were increased as from **May 1st 1998.**

FULL:	£25
Student:	£15
Corporate:	£45

The fees for departmental membership will be calculated on a sliding scale depending on the number of members in the department. Following requests from departmental members we are increasing the number of copies of INSPIRE sent out to departments, up to a total of 3 (depending on the number of members in the department).

Enquiries to: **Steve Scholey, ARTP Membership Secretary, Chest Unit, General Hospital, Pontefract, West Yorkshire, WF8 1PL.**

Dates for your Diary

14 - 18th September 1998
Short Course for Advanced Respiratory Physiology
Coventry University

19th - 23rd September 1998
ERS, Geneva.

2 - 4th December 1998
BTS winter meeting
London

21-23 January 1999
ARTP Winter Meeting
Doncaster Racecourse

See page 16 for more details

CHARITY NEWS

National Asthma Campaign
London H/Q tel no for enquiries or leaflets 0171 226 2260
3rd - 9th October 1998.

National Asthma Week
Theme- The National Asthma Campaign.
'Get active for asthma' encouraging people to raise money for the charity and become an active campaigner for the cause.
Also throughout October 'The Great British Swim'. This will be the 10th year of this event so give it an extra boost on its anniversary and take part in a sponsored swim in your area (more details from the NAC).
Take part in either one of these events (or both) and raise money for the NAC. If you would like to raise money or organise an event more information may be obtained from the NAC Providence House, Providence Place, N1 ONT (tel: 0171 226 2260).

British Lung Foundation
Gala Concert 'Tosca' at the Royal Albert Hall, 25th Feb 1999 London
For tickets and information contact The BLF London office on 0171 831 5831.
Raise money for the BLF and get fit – join a Charity Bike Ride to Jordan 18th-25th April 1999.
National BLF Awareness Week 29th May - 6th June 1999.

ARTP BURSARY QUESTIONNAIRE RESULTS

TOTAL RETURNED = 40
(membership: 350 = 11%)

GRADES:

SCIENTIST/SNR CHIEF	5	(12.5%)
CHIEF:	17	(42.5%)
SENIOR:	11	(27.5%)
BASIC/MTO2/1:	5	(12.5%)
OTHER:	2	(5%)

RESULTS:

Q1. ***Do you feel that the Devilbiss Travel bursary was a good opportunity for ARTP members?***
39 yes, 1 no

Q2. ***If yes why have you personally not applied for this or other bursaries? (tick the following)***

a). I do not wish to attend these meetings and feel they are inappropriate to my work (4)

b). The meetings are expensive and I cannot afford to pay first and claim back funds after the meeting (15)

c). I object to producing a written essay for *Inspire* (3)

d). I am apprehensive about travelling to Europe and America on my own (9)

e). I have never attended a B.T.S. meeting and therefore it is unlikely that I would attend the E.R.S. or A.T.S. (9)

f). I would prefer the bursary to be a departmental application, so that I can attend with a colleague from our department (13)

g). I cannot obtain study leave or support to attend from my head of department/ Consultant (8)

h). Other comments (33)

Which included the following comments:

"I have other source for bursary", "thought I would not stand a chance of obtaining it (i.e. hundreds applied!)", "no experience or knowledge to attend!", "apprehensive of writing an article", "lack of support to write an article", "personal commitments", "did start article to find bursary was withdrawn", "prefer younger more enthusiastic colleagues to attend", "article subjects inappropriate to small department", "new member", "regulations not clear prior to meetings", "meetings are non essential therefore do not have priority", "lack of time to write article", "difficult to arrange childcare", "not encouraged to attend large meetings", "? would be more suitable to have bursaries to attend ARTP meetings such as ICC", "cannot have any more time off for meetings (went to ICC, Birmingham)", "single mother cannot go away on meetings", "funds obtained from my Consultant therefore have not applied for this", "do not have time (in small departments) to study diseases in detail to write articles", "difficult to go abroad due to family commitments", "too short staffed to allow senior staff to be absent", "why do we have to do an article?", "just allocate funds via selection process", "this is first year that we have been allowed to attend such meetings", "cannot produce articles due to pressure of work", "lack of time to attend", "inappropriate subject matter for article", "only one technician in department therefore difficult to get time off," "no knowledge of bursary, no time to produce an article", "do not wish to submit a competition entry and that it should be kept for junior members who cannot afford to go", "I wrote an article to find out that the bursary had been withdrawn", "I have only just started working in this area", "always had other sources for funds to attend meetings".

ARTP RESPONSE

The number of questionnaires returned was disappointing; however those which were, highlighted a number of important issues. The majority of members (98%) who returned the questionnaires agreed that the Devilbis bursary was a good opportunity for members, therefore it would appear that to continue to provide bursaries is appropriate, but from additional comments the need for a change in bursary criteria and structure is required.

1. It appears that travel to attend meetings outside the UK is beyond the reach of the respondents and that perhaps the ARTP bursaries should focus on meetings at all levels which would include national ARTP and BTS meetings and courses. This will be introduced into the bursary package forthwith.
2. Members appear to prefer to attend meetings with a colleague and the suggestion of a joint application was favourably received. This will also be considered in future applications.
3. Members having to fund meetings prior to attending and having to claim back funds was also a stumbling block for several members. In exceptional circumstances, members requiring financial assistance prior to attending meetings should highlight this on the new updated bursary application form. However this will be closely monitored to ensure that funds are used appropriately.
4. Some members confirmed that they did not have their head of department's or consultant's support to attend which is very disappointing. This needs to be highlighted to BTS members via the ARTP/BTS liaison group meetings.
5. Some members objected to producing an article for *Inspire*. Reasons include : lack of time, experience, support and expertise to name a few. As a committee we feel that our members would wish for some input from applicants to substantiate limited funds being given to specific applicants. Also if several applicants apply a selection process is necessary to choose the successful applicant over other entries. However we do listen to our membership and in turn stress that " an article for *Inspire*" does not necessarily mean a scientific presentation. It could include the members experience of attending the funded meeting, a humorous event at work, a case study, a departmental protocol or initiative, etc. We ask for this, not because we want the applicant to "pay" for the privilege, but because we feel that the membership would wish for some assurance that funds are used appropriately and the membership can share in this opportunity via the successful applicant contributions to *Inspire*.

Inspire is often short of material and obviously this is an ideal opportunity for members to contribute. However, please do not forget, the Inspire journal is the membership's communication link, so members should use this avenue to communicate on any issue, not just on successful response to bursary funding.

Applications for ARTP bursaries can be obtained from:

C Jane Benson
Cardio Respiratory department
Moorgate Road
ROTHERHAM
S60 2UD

Also members please note:
WATCH OUT FOR THE RESMED (UK) LTD BURSARY TO ATTEND THE WINTER BTS MEETING!!!!!!!!

AN EVALUATION OF CARDIOPULMONARY EXERCISE TESTING

CARTER R, SRIDHAR MK, BANHAM SW

DEPARTMENT OF RESPIRATORY MEDICINE GLASGOW ROYAL INFIRMARY UNIVERSITY NHS TRUST

Introduction

The ventilatory, cardiac, circulatory and metabolic variables assessed during an integrative cardiopulmonary exercise test follow a predictable and interdependent pattern in response to exercise, so that measured deviations in the various relationships can pinpoint with accuracy which component of the system is at fault[1-8]. Cardiopulmonary exercise testing has mainly been a research tool in exercise physiology but in recent years it has also been shown to be useful in a clinical setting in the management of patients with occupational lung disease[9-11], in the assessment of patients with chronic obstructive lung disease[12-14], chronic heart failure[15-17], interstitial lung disease([18-20], pulmonary vascular disease[21,22] and patients undergoing cardiothoracic surgery[23-25].

Pratter et al[26], in a study of patients undergoing investigation for breathlessness at a chest clinic, noted that only 15 of 85 patients underwent integrative cardiopulmonary exercise testing but that this test had a 93% positive predictive value for obtaining a diagnosis. Thus, whilst in most circumstances a history, physical examination and a few investigations (chest radiograph, spirometry, single breath transfer factor for carbon monoxide, ECG, echocardiography and routine blood tests) provide adequate information to help the clinician manage the effort intolerant patient there are circumstances where an integrative cardiopulmonary exercise test can serve a useful purpose. In an attempt to evaluate the role of exercise testing in the management of patients with cardiorespiratory symptoms we have analysed the results of integrative cardiopulmonary exercise tests performed ,with particular reference to the non-invasive assessment of gas exchange using transcutaneous monitoring of arterial blood gases, in a pulmonary function laboratory.

Patients and Methods

The results of two hundred exercise tests on patients referred from the outpatient clinics or wards of the hospital were analysed. The tests analysed were randomly chosen from 1000 integrative cardiopulmonary exercise tests that were performed in the laboratory between January 1996 and January 1998. Exercise tests performed as part of research projects and rehabilitation programmes were not included in the analysis.

The patients referred for integrative cardiopulmonary exercise testing (CPET) were broadly classifiable into four groups (Table 1).

Group 1: Patients with known cardiac and pulmonary disease (most commonly ischaemic heart disease (IHD) and COPD) in whom the dominant cause for effort limitation required to be identified.

Group 2: Patients with a cardiac , pulmonary or other disease in whom CPET was performed to obtain an objective measure of exercise capacity.

Group 3: Patients with unexplained dyspnoea in whom preliminary findings (pulmonary function tests, chest radiograph, electrocardiography, full blood count, blood urea, creatinine, electrolytes and liver function tests) had shown no abnormality.

Group 4: Patients with specific disorders in which CPET was used to monitor the response to therapy.

Exercise tests

Exercise testing was carried out using an electrically braked bicycle ergometer (Siemens Ltd) with the patient breathing through a low dead space, low resistance valve box (Hans Rudolph). The valve box incorporated a flexible pneumotachograph for the measurement of tidal volume and respiratory frequency for calculation of inspired minute ventilation. The expired limb of the valve box was connected to a mixing chamber from which mixed expired gas could be analysed for the fractional concentration of oxygen (fuel cell and zirconium analyser) and carbon dioxide (infra-red spectrometer) (PK Morgan Ltd). Arterial oxygen and carbon dioxide (tcPO2 and tcPCO2) were monitored by a previously validated technique using a combined heated oxygen and carbon dioxide transcutaneous electrode and monitoring system (TCM3) (Radiometer Ltd) following an *in-vivo* calibration routine[27-30] using an arterialised ear lobe capillary sample. Electrocardiographic monitoring was carried out throughout the exercise test.

After a two minute rest period whist seated on the bicycle the patients were instructed to cycle with no additional load for a further two minutes. Thereafter the workload was increased by variable increments (10-25 watts) every two minutes until symptoms prevented further exercise. From expired gas analysis, minute ventilation, transcutaneous gas tensions and cardiac monitoring the following values were obtained and compared with predicted normal values[31]: Oxygen uptake (VO_2), carbon dioxide output (VCO_2), minute ventilation (V_E), ventilatory equivalent of CO_2 (V_E/VCO_2), alveolar-arterial oxygen gradient ($A\text{-}aO_2$), dead space/tidal volume ratio (V_D/V_T), breathing reserve (predicted maximum voluntary ventilation-V_E at maximum exercise), oxygen pulse and heart rate reserve. The anaerobic threshold (VO_2 AT) was estimated by the curve fitting method[32]. An algorithm based on Wasserman et al was used to define whether limitation of exercise capacity was the result of cardiac, ventilatory, circulatory or other factors[5].

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Table 1: Characteristics of study population

	Patient Group	n	sex	Mean age in Years(Range)
1)	**Cardiac and Pulmonary**			
	IHD/COPD	44	20 Male/24 Female	62.2 (45-75)
	IHD/CFA	2	1Male	60.6
	IHD/EAA	2	1Male	45.3
	Cardiomyopathy/PTE	2	1Female	62.6
	Valvular Heart Dis/COPD	2	2Female	49.3
2)	**Cardiac or Pulmonary**			
	Asthma	20	8Male/12Female	40.2 (17-59)
	COPD	16	10Male/6Female	64.3 (64-75)
	IHD	16	12Male/4Female	43.7 (23-62)
	OSAS	2	4Male	53.5
3)	**Unexplained Dyspnoea**	64	46Female/18Male	41.1 (27-70)
4)	**Assessment/Follow-up**			
	Cardiac Transplant	18	16Male/2Female	51.7 (48-55)
	Pulmonary Embolism	2	1Male	47.5
	Asbestosis/COAD	2	1Male	55.4

RESULTS

Group 1:

Of the fifty two patients with cardiac and respiratory disease who underwent CPET, exercise capacity was clearly limited by lung/ventilatory factors in eighteen patients and cardiac/ circulatory factors in sixteen patients. In four patients exercise capacity was normal and in thirteen patients both cardiac and ventilatory function appeared to be contributing equally to exercise limitation. One test was inconclusive as the patient could not achieve a regular breathing pattern with a mouthpiece.

Group 2:

In the sixty two patients with known cardiac or respiratory disease who underwent exercise testing there was no correlation between tests of resting cardiopulmonary function and exercise capacity (Correlation coefficient for FEV1 vs maximal oxygen uptake in patients with COPD: 0.33). Significant abnormalities of gas exchange were evident on exercise in some patients whose resting pulmonary function was only mildly abnormal. Of the four patients with sleep apnoea (OSAS) one showed a normal exercise capacity while the other patients achieved a maximal oxygen uptake of between 68 and 74% predicted. However at these reduced maximal oxygen uptakes there was no evidence of a cardiac or respiratory limitation to exercise.

Group 3:

Twenty eight of the sixty four patients with unexplained dyspnoea showed a pattern of innapropriate hyperventilation at rest which persisted during exercise. In these patients, twenty six of whom were women, V_E/VCO_2 and transcutaneous levels of oxygen and carbon dioxide showed evidence of hyperventilation while measures of gas exchange ($A\text{-}aO_2$) and cardiac function (oxygen pulse) were normal. Eighteen patients in Group 3 showed no evidence of exercise limitation. Six patients showed evidence of ventilatory limitation (asthma as demonstrated by post exercise spirometry). In four patients there was evidence of cardiac ischaemia (exercise ECG changes) on exercise. In six, patients, all obese, exercise capacity was reduced, with a mildly elevated heart rate response and a low anaerobic threshold. It was unclear whether the findings represented deconditioning or evidence of early, mild cardiac impairment. The two patients with post viral fatigue syndrome showed a decreased maximal oxygen uptake, an elevated heart rate response with an AT at the lower limit of the normal range (40% of predicted maximum VO_2).

Group 4

Of the eighteen patients undergoing assessment for cardiac transplantation, fourteen demonstrated abnormalities of gas exchange (raised V_D/V_T) at rest and exercise in the presence of normal lung volumes and spirometry. The two patients with pulmonary thromboembolic disease showed evidence of a combined cardiac and ventilation/perfusion abnormality. The two patients with asbestosis showed evidence of a ventilatory abnormality on exertion with evidence of ventilation/perfusion inequality.

Discussion

Clinical exercise testing has previously concentrated mainly on the detection of cardiac ischaemia during exercise. In recent years technological advances and a clearer understanding of the pathophysiology of exercise have given rise to the view that an objective measurement of the response of the entire gas exchange mechanism (lungs, heart and circulation) to the stress of physical exertion is likely to be useful in the clinical decision making process[33-35]. This analysis, which is an attempt to evaluate the usefulness of CPET with non-invasive assessment of indices of gas exchange as a clinical investigation offered by a pulmonary function laboratory, confirms this view.

In this study in 188 out of two hundred cases CPET was able to answer a specific question posed and provide information that was likely to have a bearing on the management of the patient involved. In patients with more than one illness that could account for exercise limitation CPET identifies the dominant illness and helps focus treatment. Likewise in patients with cardiac or pulmonary disease CPET provides an objective measure of exercise capacity which is quite often discordant with the degree of abnormality demonstrated by tests or resting cardiorespiratory function[12,17].

In these situations the CPET result may indicate the need to augment therapy and, in certain disease states like COPD and IHD, entrance to a rehabilitation programme.

The results of the tests carried out in patients with unexplained breathlessness and normal screening cardiorespiratory investigations are also of interest. Here CPET uncovers not only respiratory (usually exercise induced asthma) or cardiac disease (usually ischaemic heart disease), but has also identified a group of patients who have an inappropriate hyperventilatory response to exercise. The inappropriate nature being established by an elevated ventilatory response which is associated with a falling $tcPCO_2$, rising $tcPO_2$ and normal $A\text{-}aO_2$ gradient. These patients complain of dizziness or light-headedness with breathlessness and very often chest pain as causes for their inability to exercise further. This chest pain can often be severe and has been mistaken for coronary ischaemia. Hyperventilation has been shown to cause false positive changes in the ECG during a cardiac exercise study[36,37]. The symptoms of hypocapnia induced by voluntary overbreathing were first described by Goldman in1922[38] and the term Hyperventilation Syndrome was first used by Dalton *et al* in 1937 to describe patients with symptoms both of hypocapnia and anxiety[39]. Since this time many different interpretations of this term and different names for this type of

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"ON THE BLOWER" – Manufacturers News

1. World Cup Fever

I write this introduction in the confidence that 80% of the membership are female and are therefore ardent followers of football. I apologise to the male members who will find this bit uninteresting. By the time this article goes to press, France will be 3-0 winners over Brazil. (You read it here first!)

World Cup Fever has been established for many years and has a series of respiratory symptoms associated with it. **Hyperventilation** (either from too much singing of " Vindaloo" or "Football's Coming Home") can lead to lowered carbon dioxide levels. These can be replenished by drinking copious amounts of canned lager which fortunately is enriched with C02 that can reach the parts other beers cannot reach. (Warning: Do not drink canned soft drinks because they could contain benzene which is a nasty carcinogen!) **Cough** can be a symptom - since many have heard the phrase "....Cough referee!" shouted at the TV. The only **wheeze** I have come across is in the post-match chat is "Wheeze was robbed!" Finally, **dyspnoea** can also be heard, when Liverpool fans describe a near miss by Michael Owen in the Argentina game... "Honestly Billy, he was dyspnoea the post"

Some of my old World Cup heroes include **Malboro-donna** who always uses his hands (to light his fags - and score goals), although he seems to get an acute rhinitis which makes him sniff an awful lot through his nose! He hasn't made it this time - great loss. Also missing is **Gazz-(sthm)a** who is known to get an acute bronchoconstriction which regularly leads to the over-production of tears, whilst an over-indulgence in kebabs leads to breathlessness in training. Still, he'd be a great laugh at an ARTP Dinner! (Could he keep up with the membership at the bar??? It would be a close thing!).

2. Trade Stand

General

As from Monday 1 0th June 1998, no manufacturer may sell any lung function equipment without having a European CE approval mark on it. There are a few loopholes, but generally, hospitals will not be able to buy equipment without the CE approval. I suspect this will mean having to check carefully before "rush-buying" equipment.

Lungfunction equipment

MedGraphics / Cardiokinectics

In the last edition of On The Blower, I incorrectly stated that **MedGraphics** were "pulling out of Europe". I have since heard this was factually incorrect. I acknowledge here, that this is the case and that users of MedGraphics will continue to be supported throughout Europe and in the UK (see below). Clearly, I had got my facts wrong and I apologise to MedGraphics customers since this was based on a misunderstanding of statements issued on the Internet. MedGraphics have announced that they are looking for a new distributor in Europe and that they have closed some of their 0ffices but this is not a "pull out". When we set up this column, the intention was to try and clarify some of the myths and rumours that are generated around the country - but on this occasion we got it wrong. This column reports what members of the ARTP are hearing - we don't aim to damage reputations or to be unfairly biassed, but we do aim to inform our members of what is going on the market place. The manufacturers owe it to their customers to keep them informed via this column - which is widely read, carries influence and is free publicity!

Ferraris (Morgan Medical/Collins/Med Graphics)

The globalisation of the lung function equipment market has continued with the fast breaking news at the ATS in Chicago that **Ferraris** has bought out **Collins Cybermedic** of the US (statement from Ferraris) and have reached an agreement (statement from Morgan Medical) with **MedGraphics** for Morgan Medical to be agents in the UK and Ireland. This means Ferraris now own (or have agreements with) 3 major lung function equipment manufacturer's since they already own **Morgan Medical.** As stated above, it is unclear where **CardioKinetics,** which has been the sole agent for MedGraphics in the UK fits in to this picture - I will keep you up to date when the dust has settled! Whatever, the outcome, current MedGraphics users will be supported in the future.

In June, members of the ARTP Executive were invited to Rainham, Kent were issues regarding the future developments of the company and the needs of current owners of Morgan equipment were discussed in detail. This productive liaison allowed the Executive to view all the equipment now on offer and to share our views of how we would like hardware and software to develop and how the ARTP would like to see companies performing and supporting clinical research to help reach decisions on guideline and standards of measurement.

We were able to view the Collins full lung function testing system (to be sold in the UK as the Morgan GS ??? from September 1998) which has a modular design for spirometry, helium dilution, gas transfer, bodybox, mouth pressures, mouth occlusion pressure, and exercise testing. The basic system (1st 3 items on list), will probably be sold at about the £28K mark, with a full system probably costing around £35K.

We were also pleased to find that **Morgan Medical** has produced a new version of MDAS (DOS 4.) for current users of MDAS which irons out all the previous problems reported in this column. This will require at least a 486 PC to run, but with many centres having to but new PCs for the Year 2000 Project, this may not be as bad as we first thought. We were given assurances of further improvements in customer service, and for the first time in nearly 2 years we have seen signs of Morgan Medical listening and responding to what the users want. Continuing developments in the next two years will see a big changes in the products that the Ferarris group with more generic screen layouts, reports, options and hardware. Kevin D'Silva (M.D., Ferarris) informs me that in the car analogy game, Collins is the equivalent of Jaguar of America. (Isn't that owned by Ford who make the Mondeo?). We will continue to watch for improvements in Morgan Medical and will not hesitate to highlight any of the old problems if they re-occur. We're out there!!

I noticed in the business pages of *The Independent* that **MicroMedical** have been awarded the Queens Award for Exports - apparently largely due to a massive deal with Astra. Whatever, it all helps the old economy - so congratulations to them.

I continue to be impressed with the **Quark PFT** from **Cosmed** s.r.l. Rome, Italy (Fax: + 39 (6) 93 14 580) which are a family of modular systems. They only offer nitrogen washout for lung volumes at the moment, but there software seems clear and well thought through. The single breath transfer

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factor with sample rejection, steady state and single breath without apnoea are all available. Their **K4b 2** breath by breath gas exchange system for use by athletes during most activities (outside water that is!) is a Sports medicine department's dream. I don't know prices of these systems, and I am uncertain of technical support in the UK, but they may be what you are looking for.

Pari Medical have introduced a very useful brochure on the Myths of Nebuliser Therapy. It is a nicely put together piece of work which uses independent published data to get across the known facts about this controversial subject. I would recommend this for your information or as a source of teaching material.

Sleep study and associated equipment
Alice 4 by Healthdyne
I recently had a demonstration of the of the new **Alice 4, Sleep Screening System** sold via **Healthdyne** (recently bought by Respironics). This system can be bought to set up between 1 to 4 sleep beds, the costs ranging from £29K to £75K (excl VAT). The hardware is well thought through this time with features such as touch screens, neater cables and sensors and a wide range of facilities to detect different abnormalities.

Deva Medical are now selling the **Breas** CPAP machine at very competitive rates. I notice that MedicAid is beginning to do much better deals on the Respironics Solo CPAP units if you buy Respironics masks with them. The competition between these companies, DeVilbiss and ResMed is now very tight in the U.K. I don't know many people spending much over £275 (excl VAT) for a machine. Meanwhile, **Sunrise DeVilbiss** are selling a new silicone mask not totally dissimilar to the Respironics type - in fact it is remarkably similar to the mask that Deva Medical is also selling. Mind you, I suppose you could say the same about small hatchbacks - is there any real difference between a Citroen Saxo, Renault Clio and a Peugeot 106 apart from "Nicole and Papa" ! ! !

ResMed are about to launch their new versions of VPAP II & II ST (without and with spontaneous timed modes, respectively) in the U.K. These bi-level machines operate at between 2 to 25 cm H2O and offer an adjustable maximum IPAP time feature. This allows for flexible ventilatory patterns to suit your patients by sensing the patients breathing pattern. Also new, is the Autoset T which is a neatly designed intelligent CPAP with software. It looks like the CPAP equivalent of the Ford Ka . . . but I bet you wouldn't shove the exhaust of that up your nose!

SSI (Tel: 01865 358860) now offer a complete range of sleep monitoring equipment from the Actiwatch from Cambridge Neurotechnology, right through to the Embla digital sleep technology recording system (about £21K with PC or £25K with video). They have also produced a very neat modular VisiLab system with pulse transit time, CPAP pressure output, chest wall movement or other sensors as required which you can add to as you get money.

Miscellaneous
The ATS commercial exhibition in Chicago was generally as impressive as in previous years with over 100 stands! There seems to be rash of Nitric Oxide Analyzers on the market including the **Sievers 280 NOA** (Sievers Instruments, Inc., Colorado, USA, **Fax: (303)444 9543).** Another NO analyser the **Seres NOx 4000 Medical EVA** was available from this French company Another interesting innovation at the ATS was the **PulmoTrack Model 1010** digital technology to augment stethoscopic examination by analysing chest sounds. This obviously has potential for use in asthmatics (particularly children) and other "wheeze" conditions. Anyone interested could contact Karmel Medical Acoustic Technologies, Israel (Fax: +972

We recently bought an **Ohmeda** 3700 pulse oximeter which we use for screening for sleep apnoea on home studies. We soon realised that the software had been changed to Version 23 which makes the default sampling rate 10 seconds and not the 6 seconds recommended by Adrian Kendrick's study. We were lucky because Ohmeda kindly had some spare Version 22 EPROMs which we could change back to the original specification - but I doubt whether other users will get that option. It is very annoying when companies change specification/default settings without clearly informing the purchase, or even asking current customers what they want. I first experienced this phenomenon when buying a Milky Way aged 7 (me, not the chocolate bar!) only to find the smooth brown stuff in the middle replaced by white gritty stuff! Its just as well On the Blower for Sweets wasn't going then Mr Mars!

Procurement of Equipment
Whilst complaints to this Watchdog are not numerous, there does seem to be a general problem when new equipment is bought and installed. Firstly, the Executive Committee as a whole would endorse a "honeymoon period" of between 3-6 months where if problems occur or dissatisfaction in performance occurs, that the equipment can be returned with a full, "no-quibble" refund. Manufacturers with a good product, good back-up and their customers interests at heart - would have nothing to fear. The chances of centres exploiting the system are slim.

3. "Anti-Sleaze" Declaration

I am acknowledging that in the last 12 months, either I or members of my department have received hospitality (lunches or meals) from the following companies: Deva Medical, Morgan Medical, SensorMedics/EME, Erich Jaeger and Astra Pharmaceuticals. As stated above 6 members of the Executive Committee received accommodation, meals and travel expenses by Morgan Medical to attend this visit. This was gratefully received as it saved expenditure claims from ARTP funds. Thank you.

4. Complaints Database and WatchDog.

We are currently helping a hospital which has been having continuous problems with a SensorMedics/EME VMax 229 lung function system. Could any members who have had problems with lung volume measurements on this system please let me know urgently? We are also glad to hear from satisfied customers as well! Are users happy with the problem-solving and engineering back-up they receive from SensorMedics?

Once again, lung function departments and Manufacturers - please continue to send me your news and views.

When writing to the Complaints Database and WatchDog. please state **(i) exact dates, (ii) names of people you dealt with and (iii) state clearly your grievance.** Also, give a **summary account** of the history of your complaint (a maximum of one page of A4). There is no need to send photocopies of correspondence at this stage.

Dr Brendan Cooper, (ARTP Manufacturer's Liaison Officer)
Lung Function Department,
Nottingham City Hospital,
Nottingham NG5 1 PB.

Fax: 0115 840 2615
Tel:0115 969 1169 ext 46194.

WINNER OF THE DeVILBISS BURSARY TO THE ATS, SAN FRANCISCO

The assessment of reversible airways obstruction in chronic obstructive pulmonary disease - is there a need for body plethysmography ?

STEVE WIMPRESS, Senior Technician,
Respiratory Physiology Department Glenfield Hospital, Leicester.

SUMMARY

The aim of this study was to compare FEV1, total airway resistance (Rtot) and specific airway conductance (Sgaw) in the assessment of the bronchodilator response in patients with chronic obstructive pulmonary disease (COPD). Thirty-four patients (mean age 57(7), FEV1 1.34 (0.7)l), were referred for routine bronchodilator assessment. The FEV1, Sgaw and Rtot were measured before and after inhaled salbutamol. Patients were divided into two groups (moderate and severe) according to the degree of airflow obstruction assessed from a baseline measurement of FEV1/FVC. The mean changes in FEV1, Sgaw and Rtot were 0.24 (0.19)l, +0.03(0.05) s/kpa and -1.15(0.93)kpa/l/s respectively in the moderate group, and 0.17(0.16)l, -0.009(0.01) s/kpa and -1.79(1.35) kpa/l/s in the severe group. The changes in Sgaw were highly variable. 79% of patients had a significant response to bronchodilators according to the changes in FEV1 (≥15% or 200 ml increase from baseline), whilst the changes in Sgaw and Rtot identified three additional patients as positive responders (20% fall in Rtot and >35% increase in Sgaw). These findings suggest that Sgaw and Rtot may be a useful additional measurement in a minority of patients with COPD.

INTRODUCTION

The relief of breathlessness, improvements in the quality of life and the possible increase in exercise tolerance in patients with COPD is the aim of bronchodilator therapy. The assessment of the reversible component of COPD is usually performed in the respiratory function department. The assessment involves measurement of forced expiratory flow and volume before and after the administration of an acute dose of either a beta-2 agonist inhaler or an anticholinergic inhaler. Commonly an increase in the FEV1 measurement by 15% or 200mls is considered a positive response [1]. However, in patients with COPD the loss of elastic recoil and partial collapse of the airways during a forced vital capacity manoeuvre may mask the bronchodilatory effects of the inhaler [2,3,4].

Previous studies have demonstrated that measurements of thoracic gas volume (TGV), airways resistance (Raw) and specific conductance (Sgaw) may show an increase without a parallel improvement in the FEV1, thus supporting the use of the body plethysmograph for routine bronchodilator assessment in patients with COPD [5,6,7,8]. However, other studies have found that body plethysmography pre and post bronchodilator does not provide any additional information to the spirometric measurements of airway function [9]. Evidence for the use of body plethysmography in the routine examination of the bronchodilator response therefore remains inconclusive.

The aim of this study was to compare changes in Rtot, Sgaw and FEV1 following a single dose of salbutamol in patients with COPD.

METHODS

Patients

Patients referred for routine bronchodilator assessment with a clinical diagnosis of COPD and/or emphysema were recruited into the study. Inhaled beta-2 agonists were withheld for 4 hours prior to testing and 12 hours for anticholinergic inhalers. Patients were sub-divided into the following groups according to a baseline measurement of FEV1/FVC:- Group 1 severe (<40% FEV1/FVC), group 2 moderate (40-72% FEV1/ FVC).

Measurements

The FEV1 was measured from a flow volume loop using a dry rolling seal spirometer with a dedicated computer programme (modal C, PK Morgan, Kent UK). The best of three attempts were recorded. The plethysmograph measurements (PK Morgan) of Rtot and Sgaw were recorded from the best of 3 measurements. All patients were given 5 mg nebulised salbutamol pre and post lung function studies (or 2x100mcg salbutamol via an MDI for patients who had reversibility studies performed on a previous occasion).

Criteria for a positive bronchodilator response:-

For the FEV1 a 15% improvement from the baseline measurement and an absolute volume increase of 200ml in FEV1 was considered a significant response [1]. For the plethsymograph measurements a decrease in Rtot of >20% and increase in Sgaw of > 35% was considered significant [10].

A simple score was used to evaluate subjective changes in perceived breathlessness during the test procedures and following the bronchodilator.

2=much better, 1=better, 0= no change, -1= worse, -2=much worse.

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Statistical analysis
All data are presented as mean and standard deviation (SD) unless otherwise stated. Relationships between variables were examined using the Pearson Product correlation coefficient (r).

RESULTS

Thirty-four patients performed bronchodilator reversibility studies of which 27 were male and 7 female with a mean age of 57(7) yr (range of 54-80). There were even numbers of patients with severe and moderate airflow obstruction (group 1=17, group 2=17). The mean baseline FEV1 was 1.34 (0.7) l, Rtot 6.16 (2.68) kpa/l/s, Sgaw 0.047 (0.06) s/kpa.

Table 1 The mean (SE) changes from baseline

	Moderate Group (n = 17)	Severe group (n = 17)
FEV_1 (l)	+0.242 (0.05)	+0.167 (0.04)
Rtot (kpa/l/s)	–1.15 (0.22)	–1.79 (0.33)
Sgaw (s/kpa)	+0.03 (0.01)	–0.009 (0.002)

Table 1 shows the mean (SE) changes from baseline. Twenty seven patients (79%) (15 from group 1, and 12 from group 2) had >15% or 200 ml increase in the FEV1 following the bronchodilator. Twenty three patients (68%) (10 from group 1 and 13 from group 2) had significant improvements in the plethsymograph measurements following the bronchodilator. Table 2 shows the mean % change from the baseline measurements.

Table 2 Mean percentage change from baseline

	Moderate Group (n = 17)	Severe group (n = 17)
FEV_1 (l)	17 (3)	18 (3)
Rtot (kpa/l/s)	–19 (4)	–19 (5)
Sgaw (s/kpa)	48 (13)	31 (13)

Overall 65% of the patients had a subjective improvement in their breathing post bronchodilator. In the moderate patient group (group 2) 11 patients felt their breathing was better, 5 patients felt no change and 1 patient felt worse. In the severe group 3 patients felt their breathing was much better, 8 patients felt better, 4 patients felt no change and 1 patient felt worse.

Three patients (9%) had a significant improvement in Rtot and Sgaw without concommitant improvement in the FEV1.

The relationship between FEV1 and Rtot was only moderate (r=0.4 and 0.6 for the moderate and severe groups respectively). There was no relationship between the FEV1 and Sgaw.

CONCLUSIONS

In patients with COPD dynamic airflow limitation occurs prematurely during the forced expiration reducing expiratory flow and volume. The assessment of bronchodilation may therefore be masked by measuring indices from the forced expiratory manoeuvre. Previous studies have supported the use of the body plethysmograph as an alternative or additional measurement in the assessment of bronchodilation in this group of patients [5,6,7]. Carter [11] has demonstrated greater sensitivity in Sgaw, compared to FEV1, in patients with severe COPD. In the current study we found the FEV1 identified more positive responders than the measurements from the plethysmography in the severe group (group 1) (88% versus 59%). However, 3 patients had significant improvements in the Rtot and Sgaw without concommitant improvements in the FEV1. This small number is unlikely to warrent the routine inclusion of body plethysmography into the bronchodilator assessment.

The findings from the current study are in agreement with those from Berger [9] who concluded no additional meaningful benefit was gained from the inclusion of plethysmography in the routine bronchodilator assessment. However, Gimeno [6] found significant use for body plethysmography in the bronchodilator assessment of patients with emphysema and criticised the study from Berger for using a wide range of patients with COPD. We were unable to further categorise our patients according to clinical diagnosis. Thus the question of body plethysmography in patients with emphysema remains unanswered.

Limitations of the study:
The dose of salbutamol varied depending on the method of delivery, some patients received MDI and some received nebulised drug. We were unable to analyse the data retrospectively according to the delivery method.

In conclusion, body plethysmography is able to identify a positive bronchodilator response in a minority of patients with COPD where the FEV1 has failed to show an improvement. The routine inclusion of body plethysmography in the assessment of the bronchodilator response is not warranted, but may be useful where more rigorous categorisation is required.

ACKNOWLEDGMENTS:

I wish to thank Mr D.D. VARA, Chief Technician, and the staff of the Respiratory Physiology Laboratory for their assistance in this study.

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LUNG FUNCTION TESTS: A GUIDE TO THEIR INTERPRETATION

William JM Kinnear
Nottingham University Press
ISBN 1-897676-80-8
Price: £19-50

This is a practical guide to the interpretation of the most commonly used respiratory function tests - flow volume loops, spirometry and full lung function tests. There are also shorter sections on exercise tests and respiratory muscle tests. The book adopts a step-by-step approach to the interpretation of lung function tests. There is an explanation of predicted values, calculation of normal ranges and standardised residuals (SR). For the numerous examples of lung function report the author comes down firmly on the use of SR to define an abnormal result. As a concession to those who do not calculate the SR the percentage predicted value is also given. The format guides the reader from the simplistic 'within normal limits' to the comprehensive report which recommends additional avenues of investigation and the consideration of likely pathologies. Additional levels of complexity are presented one step at a time and each chapter ends with a useful summary. Test repeatability is dealt with briefly and there is a short chapter on serial lung function tests. This is perhaps too brief and would have benefited from a more detailed assessment and additional examples including some pre and post-treatment changes. The chapter on exercise tests is superficial and perhaps the least helpful. The useful appendix contains 11 worked examples for the reader test him/herself. This book is a very accessible introduction to the interpretation of lung function tests. It would form an excellent aid for reference and revision for measurement practitioners, for the reporting clinician and for junior doctors training in respiratory medicine.

BOOK REVIEWS

RESPIRATORY MEASUREMENT

Göran Hedenstierna
BMJ Books
ISBN 0-7279-1207-0
Price £19-95

Although this book is aimed at anaesthetists, intensive care and pulmonary physicians there is plenty to recommend it to technicians and scientists working within the respiratory function laboratory. This guidebook is the latest in the Principles and Practice Series from BMJ publishing and a large amount of information has been packed into its 184 pages. The book is a comprehensive review of the principles of ventilation and gas exchange with special emphasis on the application of pulmonary function measurement during anaesthesia. It details physiological principles and gives practical measurement guidance, with common sources of error, in the normal circumstance and during anaesthesia. The content is concise, the style direct and occasionally hard-going. The text is clear and the diagrams are worth a special mention for their clarity and simplicity. This is not a textbook for beginners and requires a moderate familiarity with the principles of respiratory physiology, and the rules which govern respiratory mechanics and gas measurement. The quality and quantity of the information and the printed presentation makes this book excellent value for money. As an up-to-date review it can be recommended for the pulmonary function laboratory as well as the anaesthetics department.

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ARTP EDUCATION UPDATE

from Clare Thomas, Education Secretary

The week long Respiratory course was recently held in Birmingham with great success. There were 29 candidates and all the feedback received so far has been very positive. Due to the success of this course the committee are looking into the possibility of running it twice yearly. It was felt it maybe useful to run one of the weeks further north to allow easier access to more people. Perhaps if you have any thoughts or suggestions on this you could write and let us know.

With the state registration in the pipe line the ARTP are hoping to initiate some more short courses/workshops which eventually will be accredited.

Topics suggested so far have included:

- COPD Guidelines
- New Drug Developments
- Body Plethysmography - The practical aspects
- Evaluating the bronchodilator response

These are only suggestions at present and we would greatly appreciate your thoughts so we can meet your needs rather than simply covering what we assume the membership want.

It seems that the prospect of state registration is having quite an effect nationally. Several colleges and universities are developing BSc and MSc courses, these include Westminster College and Keele University. The ARTP are presently developing both an MSc and a BSc to be run at Birmingham University and specifically designed for people performing all aspects of respiratory measurement. We will keep you informed as more information becomes available.

The ARTP/BTS National Assessment is well under way. The 13 candidates have submitted their work based assignments and are awaiting dates for their practical/oral examination. The theory paper will be held in September and the results will be made available in November time, so Good luck to all of you!

NVQ news, yes I know its a dirty word, but the new standards are now available so candidates registered from September will be using the revised version. Hopefully this should make life a little easier for both the candidates and the work based assessors, particularly regarding the number of practical assessments.

ARTP EXECUTIVE COMMITTEE UPDATE – from Julie Lloyd, Treasurer

If you have ever wondered what goes on behind the closed doors of an Executive Committee meeting, then read on. Hopefully, this will cover everything you wanted to know but were to afraid to ask - and maybe some bits that you didn't want to know!

With the 25th Anniversary Conference and the summer meeting well and truly over, the whole Executive Committee breathed a collective sigh of relief... temporarily.

The ARTP link with the BTS Summer meeting proved to be successful and will be maintained for the next 3 years. However, the ARTP will continue to hold its own major Winter meeting and the organisation of the next one is already well under way. The date has been set for 22nd - 23rd January 1999 and the venue will be Doncaster Racecourse Conference Centre. The flyers will be out soon.

As with the previous meeting, the membership will be consulted over content and speakers so expect plenty of paper to be making its way to you in the Autumn.

On the financial front – the year got off to a rather shaky start, due mainly to the unexpectedly high costs of staging the 25th Conference. However, things are certainly getting back on track and the ARTP bursaries are again up for grabs. Please contact Jane Benson (Bursary Secretary) at Rotherham DGH for more details.

Membership numbers have continued to rise over the past 12 months despite the price increase. Don't forget that all subscriptions should be in by the end of July. Late payers beware - we know where you are now that all Laboratories and Departments are on the ARTP membership database.

The ever elusive handbook continues to be re-edited. However, it should be available to all members before the Autumn priced at £40.00 for ARTP members and £50.00 for non-members. Your Department will not be complete without it!

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The National Assessment in Spirometry is progressing according to timetable and the first course is expected to run in September. It will be an ARTP/BTS accredited course run by endorsed training centres and laboratories aimed mainly at non technical staff performing spirometric measurements.

The 're-naming of the Society' dilemma seems set to run and run. Despite canvassing the membership, there seems to be no firm consensus for a new name. It was agreed that a wider group of professionals should be approached for their views so your guess is as good as mine...

The constitution of the Society, with which I am sure you are familiar, is currently under review. This is in part due to the increasing move towards State Registration for all Physiological Measurement Technicians. Any amendments will be put to the membership for appeal before they are finalised.

Dr Brendan Cooper and Dr Sue Hill recently attended the Occupational Standards meeting with the Department of Health in London along with other Physiological Measurement group representatives. Progress has been made on mapping the disciplines and we will keep you updated on all developments. The aim of this exercise appears to be to improve links between the various Physiological Measurement disciplines without affecting their existing organisations.

And finally on the European front, the ARTP continues to maintain an active presence with the possibility of a joint meeting with other European members being raised. This may take the format of a discussion group with various experts. More information will be circulated as soon as any definite decision is reached.

The ERS is due to re-vamp its buyers guide to be more user friendly. Dr Brendan Cooper will be co-opted on to this committee to represent the UK (at least we are sure of being heard!)

HEALTH & SAFETY NEWS

The Health & Safety Executive has published a compendium of critical appraisals which assess the ability of substances to induce occupational asthma. *Asthmagen? - critical assessments of the evidence for agents implicated in occupational asthma* is available from HSE Books, price £25 including updates. The book reviews substances which, on the balance of the evidence the HSE have gathered, should not be considered asthmagens, and others which should.

HSE Books, PO Box 1999, Sudbury Suffolk, CO10 6FS (tel: 01787 881165).

AIR POLLUTION

The deaths of between 12,000 and 24,000 vulnerable people may be bought forward and between 14,000 and 24,000 hospital admissions and re-admissions may be associated with short-term air pollution each year. The Government Committee on the Medical Effects of Air Pollutants has published the results of its first attempt to measure the effects of air pollution on the health of people in the UK. The total cost to the nation of road traffic related air pollution was valued at over £11 billion per year by the BLF in a recent report. The BLF report identified PM10 particles, mainly emitted by diesel engines, as the most dangerous air pollutant.

Copies of the Government report may be obtained from the Stationary Office, HMSO books, price £16.
The report is titled *The quantification of the effects of air pollution on health in the United Kingdom.*

Copies of the BLF report are available from The British Lung Foundation, (tel: 0171 439 7177).
The report is titled *Transport and Pollution: The Health Costs.*

RECENT ARTICLES

The following summarise recently published articles appearing in medical journals which may be of interest to ARTP members

LUNG FUNCTION and DEVICES

Assessment of accuracy and applicability of a new electronic peak flow meter and asthma monitor.
Richter K, Kanniess F, Mark B, Jorres RA, Magnussen H. Eur Respir J 1998; 12: 457- 463.
This new meter (the AMI from Jaeger) measures PEF, FEV1 and FVC. In this study a flow generator was used to test the accuracy of the device, and additionally a heated pnuemotachograph was attached to compare measurements from normal volunteers. The device fulfilled all ATS criteria for monitoring devices with respect to accuracy for PEF, FEV1 and FVC. Compared with the pneumotachograph the AMI tended to under-read FEV1 values by 4% in the normal volunteers.
(See also Editorial comment Eur Respir J 1998; 12: 261-262).

Drug output from nebulisers is dependant on the method of measurement
Barry PW, O'Callaghan C. Eur Respir J 1998; 12: 463-467.
In this study the delivery of nebulised steroid suspensions from a jet nebuliser, an open-vent nebuliser and a breath-enhanced nebuliser was measured using a constant sampling flow or a sinusoidal pump to represent the breathing pattern of children from 6 months to adulthood. The measurements of recovered steroid output varied by up to 700% depending on the simulation method used. The authors conclude that breathing patterns alter dramatically the measured output from different nebulisers and that breathing simulation should be included routinely in their assessment.

Reference values for forced spirometry
Roca J, Burgos F, et al for the Group of the European Community Respiratory Health Survey. Eur Respir J 1998; 11: 1354-1362.
This article presents an evaluation of the current ECSC reference equations and four other sets of prediction equations in 12,900 nonasthmatic subjects as part of the EC respiratory health survey. Standardised spirometric measurements were obtained using a common protocol in 34 centres in 14 countries. The deviations from the predicted value for FEV1 and FVC were examined for the whole population and for each individual centre. For the age range covered there were prominent underestimation's for both predicted FVC and predicted FEV1 for males and females. The authors conclude that the present European recommendations on lung function reference values should be reconsidered.

Expiratory valves used for home devices: experimental and clinical comparison
LoFaso F et al. Eur Respir J 1998; 11: 1382-1388.
The aim of this study was to evaluate the resistance characteristics of five different commercially available expiratory valves for domiciliary ventilators. The expiratory valves were tested on the bench to describe their mechanical qualities and also in 10 intubated patients receiving pressure support. Differences were found between the valves and the authors suggested these may have a clinically relevant impact on the respiratory efforts of patients with a high ventilatory demand.

ASTHMA

Evidence for mast cell activation during exercise induced bronchoconstriction
O'Sullivan et al. Eur Respir J 1998; 12:345-350.
This study examined whether mast cell activation was a feature of exercise induced bronchoconstriction by measuring urinary metabolites of mast cell mediators. Twelve subjects with history of exercise induced asthma exercised for 5 min at 80% maximum workload. Pulmonary function was monitored and urine collected before, 30 and 90 minutes after the provocation. Seven of the 12 subjects had >15% fall in FEV1 following exercise. These subjects also had significant increases in the breakdown products of mast cells in the urine collections. The authors conclude this is the first study to provide evidence for mast cell activation during exercise induced bronchoconstriction in asthmatics.

Quality of life assessment in children and adolescents with asthma
Rutishauser C, Sawyer SM, Bowes G. Eur Respir J 1998; 12: 486-494.
This is a comprehensive review article which examines several generic, as well as disease specific, quality of life instruments specifically designed for children and adolescents. The article discusses responsiveness and applicability of each QOL questionnaire. It also acknowledges the increasing importance of QOL measures in our understanding of disease impact and overall patient care and management

COPD, REHABILITATION AND QUALITY OF LIFE MEASURES

Randomised controlled trial of pulmonary rehabilitation in severe chronic obstructive pulmonary disease, stratified with the MRC dyspnoea scale
Wedzicha JA et al. Eur Respir J 1998; 12: 363- 370.
This study tested the hypothesis that severity of respiratory disability may affect the outcome of pulmonary rehabilitation. Patients were randomly assigned to an eight week exercise and education or education (control) only programme. Patients with MRC dysnoea rating 5 (severe breathlessness) were treated at home. The moderately breathless patients (Hospital outpatient programme) had significant improvements in shuttle walk distance and health status (assessed from the chronic if

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Calendar of Forthcoming Events

14 - 18 September 1998
Short Course in Advanced Respiratory Physiology (week 2)
Coventry University
Topics:- Bronchial challenge and skin testing, Gas transfer and measurement of lung volumes, respiratory muscle measurement and flow-volume loops, invasive and non-invasive blood gas measurement. Respiratory and cell physiology.
FEE:- **£150** for week (or **£30** /day)
10% reduction for ARTP members.
Quote ARTP membership number on application form.
Contact Anna Kovalchuk (Biology Office) for application form on 01203 631313

19th - 23rd September 1998
ERS Annual Congress
Geneva, Switzerland.
Allen and Hanbury travel bursary available (contact Sue Hill, QE Hospital, Edgbaston).
Conference information from ERS office
Tel: Switzerland 41 21 617 2868
Fax: Switzerland 41 21 617 28 65

2 - 4th December 1998
BTS Winter Meeting
QE II Conference Centre London
Tel: 0171 831 8778 for more details

9 -11th December 1998
Diagnosis and Treatment of sleep breathing disorders
Grenoble, France
Tel: Professor Levy 334 76765516
Fax: Prof Levy 334 76765617

January 15 - March 1st 1999
Asthma therapy: From basic to clinical research
Internet/intranet telesymposium
More information from S Skinner, Telesymposia Proceedings, Prous Science, PO Box 540, 08080 Barcelona, Spain.
Tel: 34 93 459 2220.
Fax: 34 93 458 1535;
e-mail: ts@prous.es;http://www.prous.com/ts

21-23rd January 1999
ARTP WINTER MEETING
Doncaster Racecourse Conference and exhibition Centre

April 1999 (TBC)
Short Course in Advanced Respiratory Physiology
(incorporating the HTEC Specialist Option)
Coventry University
Topics include: Exercise testing and interpretation; respiratory control mechanisms, sleep apnoea assessment and management, inhalation therapy.
FEE:- **£150** for week (or **£30 /day**)
10% reduction for ARTP members
Quote ARTP membership number on application form.

14 - 15th April 1999
Practical Pulmonary Pathology
Brompton Hospital London
Fax: B Corrin on 0171 351 8293

23-28 April 1999
ATS Annual Congress
San Diego, California USA
Information from ERS HQ
Fax: Switzerland 41 21 617 28 65

8 - 10th June 1999
Asthma: the agenda for the next millenium
London
The National Asthma Campaign
Tel: 0171 226 2260

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respiratory disease questionnaire). The was no improvement in exercise tolerance and smaller gains in health status in the severely breathless group. The authors conclude that improvements in exercise performance and health status after an exercise programme depends on the initial degree of dyspnoea.

Emotional status does not alter exercise tolerance in patients with chronic obstructive pulmonary disease
Borak J et al. Eur Respir J 1998; 12: 370-374.
Exercise tolerance was measured using a 6 minute walk test and visual analogue score for breathlessness and a battery of psychological tests were used to assess emotional status. The authors performed a step-wise multiple regression analysis and found 42% of the variance in the walk test was explained by FEV1, FVC, PaCO2 and the dyspnoea score. The was no relationship between walk test performance and emotional status.

CONTROL OF BREATHING AND SLEEP

Treatment of Cheynes-Stokes respiration with nasal oxygen and carbon dioxide.
Andreas S et al. Eur Respir J 1998; 12: 414-420.
Cheyne-Stokes respiration is associated with significant nocturnal desaturation, arousal and sympathetic activation. Supplemental oxygen reduces Cheyne-Stokes respiration but only by about 50%. This study investigated if more complete suppression could be achieved by adding CO2 to the supplemental O2. Nine patients were studied in a cross-over, single blind placebo controlled trial. The combination therapy was found to improve the Cheyne-Stokes respiration but had an adverse effect on sympathetic activity.