Clinical Paper Abstracts

## Controlled trial of three different antismoking interventions in General Practice

***Jamrozik, Vessey, Fowler, Wald, Parker, Vunakis. (1984): British Medical Journal, 1984; 288: 1499-1503***

Of 6052 adult patients who consulted their doctors in six Oxfordshire general practices between October 1980 and February 1981, 2110 (35%) were smokers. The smokers were allocated to one of four study groups; a group that received verbal and written antismoking advice form the general practitioner; a group that received this advice and also a demonstration of exhaled carbon monoxide; and a group that received the advice plus the offer of further help form a health visitor.

After one year 72% of smokers replied to a postal follow up questionnaire: 11% of the control group claimed to have stopped smoking compared with 15% in the group that had received advice alone, 17% in the exhaled carbon monoxide group, and 13% in the health visitor group. Validation of these findings by assays of urinary concentrations of cotinine showed that between 24% and 40% of subjects may have misreported their smoking habits, but there was no indication that the rate of misreporting was higher in the intervention groups than in the control group.

Giving advice routinely against smoking has a useful effect, and showing an immediate, personal, and potentially harmful consequence of smoking using a CO-oximeter may improve this, particularly in lower socioeconomic groups.

## Low Cost Carbon Monoxide Monitors in Smoking Assessment

***Jarvis, Belcher, Vesey, Hutchinson. (1986): Thorax, 1986; 41: 886-887***

Seventy two people provided expired air for measurement with the three carbon monoxide monitors and a sample of venous blood. These subjects comprised a mixture of colleagues and new attenders at the Maudsley Hospital smokers' clinic. A further 75 people attending outpatient clinics and King's College Hospital provided expired air samples only. Heparinised venous blood samples were taken as described previously and analysed for carboxyhaemoglobin on a IL 282 CO-Oximeter. End tidal expired air carbon monoxide concentrations were measured after 20 seconds' breath holding. In the case of the Ecolyzer and COTracer, both of which incorporate a pump for sample capture, subjects exhaled through a non-return valve into a length of anaesthetic tubing, and the alveolar sample for analysis was aspirated from the proximal end through a manometer line. The EC50 is supplied with a non-return valve that fits directly to the body of the instrument. The subject exhales through the valve and sample capture is by diffusion. Alcohol filters were fitted to all three monitors. They were fitted eternally to the Ecolyzer and COTracer; the EC50 is supplied with an internally mounted filter. The three monitors were calibrated weekly with a mixture of 100 ppm carbon monoxide in air.

Two successive readings were taken with the EC50 to check the possibility that asymptotic readings might not be reached after a single exhalation when sample capture is by diffusion.

## Evaluation of a Portable Measure of Expired-Air Carbon Monoxide

***Irving, Phil, Clark, Crombie, Smith. (1988): Preventive Medicine, 1988; 17: 109-115***

The subjects were healthy men and woman, ages 40-59 years, randomly sampled from the Primary Care Registers as part of the Scottish Heart Health Study (14). Subjects completed a questionnaire that included details of their smoking history. Expired-air CO was recorded using the Jarvis protocol (7) in which subjects were asked to exhale fully, inhale deeply, and hold their breath for 20 seconds before exhaling rapidly into a disposable mouthpiece. Readings were obtained with both analyzers, the order being alternated for each subject. Background CO values were obtained for both machines prior to the subject readings with each analyzer. The subject readings were determined by subtracting the background level from the observed readings.

Prior to the start of the study, both analyzers were calibrated with a gaseous mixture containing 50 ppm of CO in accordance with the manufacturers' instructions. In addition, the Ecolyzer required further calibrations as directed in the operating manual. Throughout the study CO levels were measured by four operators-all trained in the technique. During the study of the Ecolyzer was used with an alcohol filter. Preliminary investigations showed that neither machine was affected by breath alcohol or by levels of hydrogen likely to be encountered.

## Comparison of Tests Used to Distinguish Smokers from Nonsmokers

***Jarvis, Tunstall-Pedoe, Feyerabend, Vesey, Saloojee. (1987): American Journal of Public Health, 1987; 77: 1435-1438***

The subjects for study were 215 outpatients at St. Mary's Hospital, London. On arrival for their clinic appointment, they were asked to fill in a self-completion questionnaire giving details of smoking habits and to provide samples of blood, expired air, saliva and urine. There was prior warning of the survey, but consent for the biochemical test was obtained before completion of the questionnaire. It was emphasized that the questionnaire responses were confidential and would not become part of hospital notes or be communicated to the medical staff. It was hoped that this would encourage accurate self-report. The present report is confined to 211 subjects who provided adequate questionnaire and biochemical data. There were 159 men (average age 56.0) and 52 women (average age 55.3); 119 attended afternoon cardiology clinics, and 92 a morning peripheral vascular clinic. A high proportion were suffering from smoking-related diseases. A total of 188 (89 per cent) reported having been cigarette smokers at some time and 90 (43 per cent) said that they were current smokers of cigarettes, pipes or cigars. Reported mean cigarette consumption in the cigarette smokers was 13.2 cigarettes per day, and 97 per cent reported having smoked on the test day, with a mean time since last cigarette of 1.5 hours.

The concentration of nicotine and cotinine in plasma, saliva and urine was determined by gas chromatography. Carboxyhaemoglobin concentrations were measure with an IL282 CO-Oximeter and carbon monoxide in expired air after breath holding with a portable CO analyzer incorporating and ethanol filter. Thiocynate was measured by an automated modification of the Aldridge technique. Urinary concentrations of nicotine, coninine, and Thiocynate were not adjusted for urine flow.

## The Effect of Duration of Breath-Holding on Expired Air Carbon Monoxide Concentration in Cigarette Smokers

***West. (1984): Addictive Behaviors, 1984; 9: 307-309***

Exhaled alveolar air contains carbon monoxide that has passed from the blood during a period of breath holding and so provides an accurate guide to carboxyhaemoglobin concentration, itself affected by inhaling tobacco smoke. It has been claimed that breath hold duration makes no appreciable difference to the expired air carbon monoxide (ECO) concentration obtained. A study was conducted to determine the relationship between duration of breath holding prior to exhalation and EC) value. It was found that ECO concentration increased systematically up to 25 seconds of breath holding, with the curve beginning to flatten off after 15 seconds. It is concluded that where possible a breath hold duration of at least 20 seconds should be used and that shorter durations do not provide ECO concentrations comparable with the 20-second value.

## Is Smoking a Disease?

***Steele. (1994): J. Smoking-Related Dis, 1994; 5 (Suppl. 1): 219-222***

Smoking, once regarded as a 'dirty smelly habit', is now widely accepted as an addiction to nicotine. The smoking population spectrum encompasses those with little or no addiction, to those who are so severely addicted that they are unable to quit smoking despite serious smoking-related disease, e.g. leg amputation, myocardial infraction.

This paper introduces an interesting 'new disease' entity, directly related to smoking, from which every smoker suffers. Not addressing this 'new disease' or lack of awareness of the 'condition' presents important medico-legal implications for all doctors when encountering patients who smoke. The author reminds Government Health Departments and doctors who ignore this 'new disease' that they do so at their peril.

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