

## **VOLUME 6(4) December 1986**

Below are short overviews of the articles that appeared in this issue of VOLUME:

### **Brief History of the Tuberculous Pulmonary Cavity (Dr Peter R. Bull, FRACP, FCCP. Austin Hospital, Victoria)**

This brief review is based on a full review by the Dr Bull, a Consultant Respiratory Physician, published in 1984 by the Health Commission of Victoria.

When this article was written the WHO and the International Union Against Tuberculosis estimated that at any time 10 – 20 million people suffer from pulmonary tuberculosis and the annual mortality rate was 2 million. In Victoria the case rate in the early 1980s was about 250 people per year with only a few dying annually – in contrast to 100 years ago when 1000 – 1300 people died annually in Victoria.

Dr Bull provides a fascinating historical review of the evolution of surgical interventions aimed at healing the lung by collapsing the walls of the tuberculous cavity. Before effective drug treatment was available, a tuberculous cavity had to heal by fibrosis and contraction allowing the walls of the cavity to come together and fuse. Contraction was often helped by surgically reducing the size of the lung volume by an operation involving removal of ribs (called thoracoplasty) and a number of chest wall operations were devised in the 1880's to facilitate this. Although it was known in the late 17<sup>th</sup> century that intra-pleural pneumothorax resulted in healing of the underlying tuberculosis, it was not until 1821 that Carson of Liverpool noted that this could result in complete contraction of a cavity and initiated therapeutic pneumothorax for control of tuberculosis. Later, other contraction methods were used including paralysis of the phrenic nerve (to raise the diaphragm) and inserting material between the ribs and underlying lung tissue. The introduction of chest x-rays in the early part of last century made previous extensive whole chest thoracoplasty unnecessary as localised areas of the chest wall could be pinpointed and removed to allow partial lung collapse. However, resection of lung tissue was problematic in the presence of positive sputum and collapse therapy was preferred.

The introduction of streptomycin and other drugs in the 1940's and 1950's had a profound affect on the treatment of tuberculosis, and resulted in surgery becoming less common. These new drugs allowed cavities to remain open with sterilised walls, although superinfection with a fungus (eg *Aspergillus fumigatus*) often resulted in the need to remove lung tissue. Dr Bull concluded that with drug resistant organisms appearing more frequently "we may have to return to limited use of resection and thoracoplasty", I wonder whether this has occurred?

### **Evaluation of Vitalograph Spirometers in Clinical Use (Jenny T. Baker and John C. Tomlinson. Respiratory Laboratory, Princess Alexandra Hospital, Queensland)**

This article evaluated the accuracy of 31 Vitalograph spirometers (10 used in laboratories and 21 in wards, clinics, etc) used in five major Brisbane hospitals. Test signals were generated using a 3-litre syringe and explosive decompression device (EDDE). The dynamic flows and volumes generated by EDDE for the different combinations of chamber pressure and resistor size were determined using a laboratory standard water-sealed spirometer (Godart). The authors found that of the

31 Vitalograph spirometers only 5 operated accurately without mechanical adjustment (eg pen position, repositioning and calibration of the wedge-bellows, and repositioning of the micro switch). One spirometer was taken out of service as it was beyond repair. The authors did not find laboratory based Vitalographs to be more accurate than those used in wards and clinics. The authors concluded that greater attention to the accuracy of spirometers in clinical use was needed (sound familiar?).

### **Mouth-Piece**

Haleraid: The Haleraid was introduced in December 1986 and a short note with photograph appeared. It was priced at about \$5.

References of Interest: Six interesting references were listed including two articles by Adrian Kendrick (international ANZSRS Guest Speaker): *To Standardize or Not to Standardize*, and *Infection Control in Respiratory Physiology*.

**Please contact me if you are interested in a copy of this or any other issue of VOLUME (note my new telephone number).**

David P. Johns PhD, CRFS, FANZSRS

Menzies Research Institute, University of Tasmania.

[david.johns@utas.edu.au](mailto:david.johns@utas.edu.au)

Tel: (07) 4125 1908