ABSTRACTS OF SELECTED PAPERS

ETUDE SUR LES PERTURBATIONS DE LA FONCTION RESPIRATOIRE CHEZ LES HANDICAPÉS MOTEURS: O. JAEGER-DENAVIT ET A. GROSSIORD (1968). A study of the disturbances of respiratory function in patients with neuro-motor dysfunction. *Le Poumon et le Coeur*, 1968, **34**, No. 10.

The maladaptation to exercise in certain patients with neuro-motor dysfunction led us to study the respiratory function of these patients in terms of the mechanics of ventilation, the regulation of respiratory movement, and the energy expenditure. This study has given us certain data on the physiology of respiratory function.

When there is a paralysis of the muscles of respiration the study of variations in Vital Capacity as a function of the action of weight-gravity reveals very important differences in relation to the normal person, and extremely variable according to the distribution and character (flaccid or spastic) of the condition. The corrective role of the abdominal musculature has been studied. In the child, problems encountered because of the growing thorax and deformations of the thoracic vertebrae have an effect on respiration. These may be partly or completely removed by orthopaedic intervention.

Difficulties or respiratory regulation can be central in origin, and we have described and analysed certain respiratory movements seen in cases with brain-stem lesions. But there are also peripheral problems of regulation and in particular of ventilation at the beginning of the movement when this is made in the region under the lesion of medullary disorder. They are connected to an extra-thoracic ventilatory proprioceptive stimulus deficit.

Finally a fall in muscle tone below the lesion causes a decrease in oxygen consummation. The onset of spasticity tends to restore this value to normal or above normal, perhaps a reflection of the degree of spasticity.

LES CARACTÈRES ÉVOLUTIFS DES SCOLIOSES POLIOMYÉLITIQUES. Étude longitudinale de 207 cas de scolioses poliomyélitiques de type respiratoire: G. BEAUPERE-DUVAL ET A. GROSSIORD (1967). Developmental characteristics of poliomyelitic scoliosis. Longitudinal study of 207 cases involving respiratory complications (Summary). *La Presse Medicale*, 11 Novembre, **75**, 2375-2380.

Among 4000 patients hospitalised for poliomyelitis at Garches, a study was made of 1000 children with actual or threatened scoliosis. The authors describe the signs and symptoms of this type of scoliosis as well as a topographical classification which they have proposed according to the associated effects of the disease.

The present study concerns itself with the evolution of poliomyelitic scoliosis involving respiratory complications. Diagrams show the evolution of this type of scoliosis to be of linear development. This is represented by several segments, of which two are noteworthy the one before and the one during puberty. Statistical analyses were done of the results and the evolution gradient for each of these periods was studied together with the effects of different therapeutic measures. The distribution of the dates of onset of puberty process suggested this to have been premature in certain patients.

Recognition of the development pattern of the disease obtained from this study allows an accurate prognosis to be made and the possibility to establish a long-range therapeutic regime.

The basic interest of this investigation is not limited to poliomyelitic scoliosis. The authors feel that it opens avenues of study on spinal development in relation to the different stages of pubertal development and allows comparisons to be made with primary scoliosis.

ÉTUDE DE LA CONSOMMATION D'OXYGENE CHEZ LES PARAPLÉGIQUES ET LES TÉTRAPLÉGIQUES EN FONCTION DU NIVEAU MÉDULLAIRE ET DES PERTURBATIONS TONIQUES: O. JAEGER-DENAVIT, PH. LACET ET A. GROSSIORD (1968). *Revue Francaise D'Études Cliniques et Biologiques.*

The $\dot{V}O_2$ was measured amongst 37 paraplegic and quadriplegic patients. Their spasticity was evaluated according a three-degree scale.

The results were compared to the $\dot{V}O_2$ of 10 normal subjects and 7 poliomyelitic patients.

The measurements were made several times on each patient, the subject being on a complete rest and three hours after any absorption of food or liquid.

The significant statistic variations that we take in consideration suggest that: (*a*) the fall of the sublesional muscular tone is the leading factor in the reduction of the $\dot{V}O_2$, (*b*) the spasticity tends to bring back the $\dot{V}O_2/m^2$ near normal values even to higher ones, perhaps in relation to the degree of spasticity.

VASOMOTRICITÉ CUTANÉE CHEZ LES PARAPLÉGIQUES. A propos de l'étude pléthysmographique de dix malades: O. JAEGER-DENAVIT, J. GAUSSEL, M. BEDOISEAU, S. PANNER, Ph. LACERT ET A. GRISSIORD (1969). Skin vasomotor reactions in parplegia. A plethysmographic study of 10 patients. *La Presse Medicale*, 26 Juillet-2 Août, 77, No. 35.

This study of skin vasomotor reactions during variations in local temperature was carried out in 10 patients with paraplegia due to complete traumatic section of the spinal cord.

These local variations in skin temperature which are the main physiological stimulus to skin blood flow had less effect on the latter in areas below the cord lesions; temperature regulation is thus disturbed, for skin vasomotor reactions play an important role in this.

Compared with a population of normal subjects, the paraplegic group had more variable level of the spinal section in this group.

PROGNOSIS AND TREATMENT OF TRAUMATIC TETRAPLEGICS: J. BENASSY (1969). *Entretiens de Bichat—Chirurgie.*

During the last eight years 363 traumatic lesions of the spinal cord or cauda equina were admitted, 96 of them (26%) tetraplegics. Four of the tetraplegics died, one in hospital, three after discharge, which compares favourably with the 20 to 33% mortality in neurosurgical or accident centres. The author gives a survey of the treatment of tetraplegics. He rejects laminectomy and treats hyperextension injuries by simple immobilisation of the cervical spine with a Minerva plaster, or fractures by skull traction. Paralysis of the bladder is treated either by six-hourly intermittent catheterisation or by indwelling catheter (never by cystostomy). With regard to domestic resettlement of certain tetraplegics the author deplores that there does not exist a single Hostel for Tetraplegics in France as has been set up at Stoke Mandeville in England.

A PROPOS DES TRANSPLANTATIONS TENDINEUSES POUR LA REANIMATION DE LA MAIN DU TETRAPLEGIQUE (9 CAS SUR 100 MALADES): P. MASSE, M. MAURY, Y. BIDART ET B. GRAVIL (1968). *Annales de Médecine Physique*, **11**, 351-369.

In 9 tetraplegic patients tendon transfers were made in the upper limbs.
—4 patients were greatly improved, in muscular testing and in functional capacities
—2 patients were slightly improved
—3 patients gained no improvement, but no aggravation.

From our experience, these operations must be decided upon:
—sufficient delay from the onset of tetraplegia: to preserve the possibility of neurologic improvement and functional progress, it is necessary to wait one year at least. In some cases (according to neurologic type or evolution) the delay must be much greater.
—the importance of motor and functional deficiency
—a moderate sensitive deficiency
—a convenient articular motility
—the existence of undamaged muscles available for transfer.

The choice of the muscles and of the type of operation is very important:
—the previously damaged muscles are not suitable for transfer, even if they have recovered normal strength.
—non-synergic muscles may be used with good results.
—antagonist muscles must not be restored at the same time.

The transfers most used were
Pronator teres transferred to the tendons of flexor digitorum profundus (7 cases)
Brachioradialis transferred to the tendon of flexor pollicis longus (4 cases).

In the surgical decision, it must never be forgotten that it is of primary consideration not to cause reduction in the remaining functional capacities.

SPINAL ILEUS: D. F. L. WATKIN (1970). *British Journal of Surgery*, **57**, 142-148.

This paper is based on a study of 8 patients who had 'intestinal pseudo-obstruction'. Five had 'spastic illeus' (or pseudo-obstruction), with colicky pains and loud bowel sounds; and 3 had 'paralytic ileus' with no pain, but one of these patients had normal bowel sounds. Two patients had a spinal fracture, one at D12 level, no mention is made of neurological involvement; laparotomy was necessary in this patient. The other had a fracture of D11, 12, L1 and L2 vertebrae with no neurological abnormality and laparotomy was also required in this patient. Three patients had protruded lumbar intervertebral discs, none of these had operative treatment for the disc lesion; one patient required laparotomy. One patient had a fractured pelvis; one had an infarcted spinal cord and was paraplegic and died, and autopsy showed in addition, bacterial endocarditis; and one patient had a plaster of Paris cast on for tuberculosis of the cervical spine; this patient was quadriplegic and had had a decompressive laminectomy and was then placed in a Minerva plaster of Paris.

The author mentions that reports of intestinal obstruction complicating spinal lesions are scanty. He discusses 'functional intestinal obstruction' in relation to its aetiology, diagnosis (including clinical and radiological studies and sigmoidoscopy), and treatment—and regarding this he gives a list of indications for laparotomy. A particular point that he mentions is that abdominal pain and bowel sounds are commonly present in these patients, and this is different from 'post-operative paralytic ileus'.

Prevention, early recognition of the condition, and the use of Prostigmine are not specially mentioned. PHILLIP HARRIS