ABSTRACTS FROM PAPERS

THE PARAPLEGIC PATIENT IN PREGNANCY AND LABOUR: L. GUTTMANN AND STRUAN ROBERTSON, *Proc. Roy. Soc. Med.* (1963), 56, 380/387, Section Obstetrics & Gynaecology.

Amongst the various problems of social re-integration of spinal paraplegics the sexual problem has been one of increasing importance as a result of the advances made in the rehabilitation of these patients. This problem has become more acute in recent years with the increasing numbers of marriages of female paraplegics. It has been the experience of the authors that paraplegic and even tetraplegic women can successfully accept the challenge of motherhood.

In the two combined papers read at the meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine (11 January 1963) an account is given of pregnancy and labour in 19 patients, the majority of these—13—being spinal cord lesions due to fracture-dislocation of the spine at various levels, ranging from the lumbar to the cervical region. Nine of these were complete lesions of the cord. Altogether 22 babies were born—13 boys and nine girls—to 15 paraplegics and one tetraplegic. Four of the paraplegics, amongst them three traumatic ones, had two children each after becoming paraplegics. Three already had children before their paraplegia. Two of the 22 babies were stillborn.

The authors discuss the various aspects of pregnancy and labour in paraplegic women, such as infection of the urinary tract, pressure sores, anaemia, signs of pre-eclamptic toxaemia, effects of pregnancy and labour on the sensory system, premature labour, the methods of delivery and breastfeeding. Special attention is drawn to the reactions of autonomic mechanisms, especially cardio-vascular responses such as blood-pressure and pulse in patients with high cord lesions above C5, and a detailed account of these responses is given in a case of tetraplegia below T6 following fracture-dislocation of C4/5. Intermittent hypertension and bradycardia occurred coinciding with the uterine contractions during labour. When the B.P. had risen to 180/110 and the pulse was 48-50 per minute delivery of a normal boy by forceps was carried out. These observations represent further confirmation of one of the authors previous work (Guttmann) on reflex responses of autonomic mechanisms especially those of the cardio-vascular system—due to increased activity of other viscera such as bladder and rectum in high cord lesions.

It is emphasised that the profound cardio-vascular reactions, hypertension, brady-cardia and headaches during the later stages of labour need careful attention by the medical and nursing attendants, as they are indication of time and method for promoting delivery. The paraplegic and tetraplegic should be taught to appreciate certain symptoms of reflex responses of autonomic mechanisms as an indication of onset of labour in the absence of appreciation of uterine contractions or painful sensations in the late stage of pregnancy near term. From the authors statistics it is concluded that Caesarian section should be reserved for special cases only.

ON THE BEHAVIOUR OF BLOOD PRESSURE IN PARAPLEGICS: (Über das Verhalten des Blutdrucks beim Paraplegiker), B. GARMIER, P. IMHOF, F. HEDIGER, B. STEINMANN (1963), *Cardiologie*, 42, 103-112.

The authors in following the research on autonomic, in particular, cardiovascular mechanisms in paraplegics initiated by Guttmann and his team of co-workers, studied the effects of passive tilting on patients with complete lesions of the spinal cord. They confirm in high lesions, especially those of the cervical cord, the complete absence of

orthostatic adjustment of blood pressure. In the same patients, on the other hand, visceral stimuli such as distension of the bladder, elicited exaggerated reflex responses of autonomic mechanisms, manifested by a rise of blood pressure, perspiration and goose-skin. In one patient, aged 45, with an upper thoracic transverse syndrome, the electro-cardiogram revealed apart from hypertension with bradycardia, a partial A.V.-Block with antrium extrasystoles which they considered as vagal counteraction. Moreover, they also found increased cathecholamine excretion in the urine during bladder distension in tetraplegics (C5, C6) at the height of the distension which was four and twelve times respectively, as compared with the initial values before bladder distension. In accordance with v. Euler and MacGoodall they assume that Noradrenaline is set free at the sympathetic nerve endings and not in the supra-renals.

ON BIRTH FOLLOWING SPINAL PARAPLEGIA: H. JUNG AND K. SCHMIDT, Zur Geburt nach Querschnittslähmung, *Zentralbl. f. Gynäkologie* 1962, 84, 1105.

The authors describe in detail blood pressure changes during labour in a woman of 30 who, 1½ years before pregnancy sustained in addition to a skull fracture, a complete transverse cord syndrome below T5 following a motor car accident. The first months of pregnancy were uneventful but several weeks before term she was suffering from frequent attacks of vomiting and swelling of both legs. On admission to hospital B.P. was already 160/110 mm. Hg.; urine was normal without protein, there was no oedema and the general condition was good. There was nothing abnormal during the first period of labour but as soon as the membranes were ruptured and the head of the child was within the inter-spinous plane, B.P. rose to 230/110 intermittently with every uterine contraction. This rise of blood pressure was combined with 'dramatic' convulsions and profound headaches. The intermittent hypertension was very soon replaced by a slow continuing rise of blood pressure to 230/145 and vomiting occurred. It was then decided to perform Caesarean section and a normal boy was delivered. At the end of the operation the mother collapsed and the blood pressure fell to 75 mm. but recovered to 115/80 and 130/85 following appropriate treatment. The mother was unconscious and when she came round she had a paralysis of oculomotor movements to the left and a facial paralysis on the left associated with a paralysis of the left arm. Lumbar puncture a few days later showed a strong haemorrhagic-xanthochromic C.S.F.

In discussing the pathology, the authors reject the possibility of ecclampsia both from a neurogenic and humoral (Renin-Hypertensin) point of view. They come to the conclusion that the intermittent hypertension was due to a viscero-spinal reflex as a result of stimulation of the reflexo-genic zones in the pelvis, in accordance with Guttmann's investigations on the effect of visceral activity on the cardiovascular system and high lesions of the spinal cord.

With regard to the cerebral haemorrhage which developed in this case, the authors assume that this was due to a post-traumatic aneurysm (as a result of the head injury) which burst during the continuous hypertension of labour in the final stage.