ANTISTRIATED MUSCLE-ANTIBODIES DURING CLINICAL DYSREFLEXIA: CASE REPORT

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Abstract. The object of the following study is the research of an immunological mechanism related to the clinical dysreflexia found in tetraplegic patients. Dysreflexia is known to be associated with automatic mechanisms during bladder distention in patients with lesions about T5.

THIS case study concerns a worker 32 years old, who was hospitalised after a road accident. The initial diagnosis was tetraplegia due to anterior luxation of C5 on C6. The patient was hospitalised in the Spinal Cord Injury Center and laboratory examinations were carried out in the Laboratory of Immunology of the Geneva University Hospital.

Many difficulties were encountered during his treatment: instability of the cervical spine hence osteosynthesis C5-C6-C7 was performed; paralytic ileus, which lasted for 10 days, and severe respiratory problems.

From the practical point of view the prognosis was considered to be hopeless but intensive care was successful, and rehabilitation could begin. Intermittent catheterisation was instituted but recurrent and resistant urinary infections complicated treatment. Dysreflexia appeared and was very severe. The existence of a urinary stasis which could not be eliminated by the use of drugs required bilateral sphincterotomy, resection of the neck and TUR prostatectomy. The remaining major clinical problem was the treatment of a skin scar.

Laboratory immunological studies

Latex, antinuclear antismooth-muscle antibodies and antistriated muscle-antibodies were studied. Latex, antinuclear and antismooth muscle-antibody were always negative.

TABLE I
The results obtained for antistriated muscle-antibodies

Period after the accident	Clinical finding	Level of antistriated muscle-antibodies
6 month	Dysreflexia ++	1/160
9 1/2 "	" ++	1/160
11 "	" +	1/80
13 "	" —	neg.

Discussion

Head and Riddoch (1917) described the effect of bladder activity on sweating and this effect was attributed to fibres arising from the cord below the level of the lesion. Guttman and Whitteridge (1947) found in their experimental studies in bladder distention with lesions below T5 the following;

- (1) Vasoconstriction of toes accompanied by vasoconstriction of fingers;
- (2) a marked rise in blood pressure;
- (3) a marked drop in temperature of the legs;
- (4) vasodilatation in parts above the level of the lesion involving the nasopharyngeal mucosa, with blockage of nasal air passage and nasal voice;
- (5) fullness of the head and increasing headache;
- (6) one minute after the bladder was emptied the headache began to disappear.

Studies done by Garnier and Gertsch (1964) showed that dysreflexia is accompanied by liberation of catecholamines. Rossier, Ziegler, Duchosal and Meylan (1971) found that ejaculations by paraplegic patients were accompanied by severe symptoms of autonomic dysreflexia. Clinical findings were closely related to catecholamine levels. Sizemore and Winternitz (1970) found alpha receptor blocking agents suppressed the clinical signs of hyperreflexia. The possibility of the influence of immunological factors during dysreflexia was examined. The antigen-antibodies reaction, when activated, can free histamine, catecholamines and serotonin. A high level of histamine and catecholamine is found during the clinical signs of dysreflexia.

Our finding of antistriated muscle-antibodies during the period of clinical dysreflexia is of interest and further studies will show if in other cases an immunological mechanism is also present. The possibility of an immunological mechanism, as part of the development of the clinical dysreflexia, cannot be excluded.

SUMMARY

The case described is that of a tetraplegic patient suffering from marked symptoms of dysreflexia accompanied by severe headaches. Antistriated muscular antibodies were found and the highest levels were found when clinical signs were maximal. When dysreflexia disappeared antistriated muscular antibodies were no longer found.

RÉSUMÉ

Description d'un patient tétraplégique présentant une dysrèflexie, accompagnée de sévères céphalées. Des anticorps antimuscle striés ont été trouvés. Le titre le plus élevé des anticorps a été relevé quand la dysrèflexie était la plus sévère. Lorsque les signes de dysrèflexie ne sont plus manifestés, les recherches d'anticorps se sont révélées négatives.

ZUSAMMENFASSUNG

Der beschriebene Fall handelt von einem tetraplegischen Patienten, der an schwerer Dysreflexie mit starken Kopfschmerzen litt. Es wurden bei ihm Antikörper gegen die gestreifte Muskulatur gefunden. Die höchsten Titer wurden während der maximalen klinischen Manifestation gemessen. Nach Abklingen der Dysreflexie waren die Antikörper gegen gestreifte Muskulatur nicht mehr nachweisbar.

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REFERENCES

- GARNIER, B. & GERTSCH, R. (1964). Autonome hyperreflexie und Katecholamin-Ausscheidung beim Paraplegiker. *Schweiz. med. Wschr.*, **94**, 124-130.
- GUTTMANN, L. & WHITTERIDGE, D. (1947). Effects of bladder distention on automatic mechanisms after spinal cord injuries. *Brain*, **70**, 361-404.
- HEAD, H. & RIDDOCH, G. (1917). Automatic bladder, excessive sweating and some other reflex condition in gross injuries of spinal cord. *Brain*, **40**, 118-263.
- ROSSIER, A. B., ZIEGLER, W. H., DUCHOSAL, P. W. & MEYLAN, J. (1971). Sexual function and dysreflexia. *Paraplegia*, **9**, 51-63.
- SIZEMORE, G. W. & WINTERNITZ, W. W. (1970). Autonomic hyperreflexia, Suppression with alpha adrenergic blocking agents. *New Engl. J. Med.*, **282**, 795.