cerebrale Störungen und in diesem Fall wird eine gleichzeitige Schädigung entweder des Uterus oder des Foetus durch den Unfall mit Wahrscheinlichkeit angenommen. Zwei Patienten mit traumatischer Paraplegie gebährten normale Kinder.

Die klinischen Beobachtungen werden diskutiert.

Es besteht immer noch die Frage, ob bei Paraplegikerinnen eine grössere Wahrscheinlichkeit besteht, geschädigte oder deformierte Kinder zu gebären als bei nicht gelähmten Frauen, wenn eine Rückenmarksverletzung während der Schwangerschaft erfolgte oder wenn Schwangerschaft nach einer solchen Verletzung eingetreten war.

RÉSUMÉ

Trois observations de grossesse et d'accouchement chez des femmes paraplégiques sont présentées.

Il résulte de la discussion,

- (1) que la conception n'est pas perturbée,
- (2) que le développement du foetus ne semble pas aggravé par les complications dues à la paraplégie, et, enfin que la force des contractions utérines ne paraît pas être diminuée dans les lésions thoraciques complètes.

La question demeure, à savoir, si une femme paraplégique accouche plus fréquemment qu'une femme non paraplégique d'un enfant traumatisé ou déformé, l'atteinte médullaire survenant au cours de la grossesse, ou avant celle-ci.

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A STUDY ON SEXUAL FUNCTION IN 56 MALE PATIENTS WITH COMPLETE IRREVERSIBLE LESIONS OF THE SPINAL CORD AND CAUDA EQUINA

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FOUR years ago H. Wahle (1965a, b) published a study on paraplegic patients with complete lesions, in which special mention was made of the length of the period of rehabilitation. The choice of the average length of the period necessary to rehabilitate a patient was based on the results obtained by Sir Ludwig Guttmann (1956) depending on the level of the lesion (Table I). We are referring to the accident as stage I, this is followed by the observation period, section A, after which the average Stoke Mandeville patient could have been discharged from hospital at stage II.

In 86 per cent. of our cases the observation periods (sections A and B) were prolonged because early treatment was inadequate and patients developed various of the typical complications, such as pressure sores, contractures, infections of the urinary tract, orchitis and epididymitis. Since Talbot stated already in 1949 that sexual function in patients with complete and incomplete lesions showed great differences, we limited our investigation to a group of 56 patients with complete lesions. These patients were interviewed personally, and as far as possible also their wives were asked specific questions. A more detailed report has been published recently (Wahle & Jochheim, 1970).

TABLE I
Level of the Lesion and Duration of Observation

	Stage I	Section A	Stage II	Section B	Stage III
Duration of paralysis and observation	C6-D5 D6-D12 L1-L4	12 months 7 months 5 months	C6-D5 D6-D12 L1-L4	12 months 7 months 5 months	C6-D5 D6-D12 L1-L4

As far as the clinical picture was concerned, all cases exhibited complete paralysis of motor and sensory functions as well as loss of control of bladder, bowels and sexual function. When selecting our types we distinguished whether they suffered from spastic paralysis or from flaccid paralysis, without giving consideration to the level of the lesion.

To classify sexual functions we used four criteria: erection, ejaculation, orgasm, and libido sexualis. When trying to define erection we had some difficulties to distinguish it from early priapism because reliable data of the duration of erection were not available. Congestion of the penis without erection was not recorded.

Table II shows the results obtained in the spastic group. Despite the small number of 35 cases in stage II and 29 cases in stage III, we give them in percentages in order to compare our own results with those quoted in earlier publications (Horne *et al.*, 1948; Munro *et al.*, 1948; Talbot, 1949; Money, 1960).

Table III shows frequency of erection, ejaculation, orgasm and libido sexualis in the group of patients with flaccid paraplysis. In stage II only 4.8 per cent. reported an erection, but in stage III—which is twice the usual rehabilitation period—six cases (*i.e.* 31.6 per cent. reported) erection, though five of them said that the erection was incomplete. During the observation period A no ejaculation was reported. 11.1 per cent. experienced an ejaculation in stage III, though without orgasm and without control of progression towards the point of orgasm. During the observation period pregnancies occurred neither in the spastic nor in the flaccid group. The term 'libido sexualis' was only used when referring to desire for intercourse. In stage II we got negative replies from 92.9 per cent. of the spastics and from 100 per cent. of the patients suffering from flaccid paralysis. A slight change was stated in stage III when 73.9 per cent. of the spastics and 94.4 per cent. of those suffering from flaccid paralysis still reported no sexual desire. Some of them made brief comments like 'This is finished for me', 'No more

TABLE II

Frequency of Erection, Ejaculation, Orgasm and Libido Sexualis in Male Paraplegics with Complete Spastic Paralysis in Stages II and III

	Stage II				Stage III			
	Erection	Ejaculation	Orgasm	Libido sex.	Erection	Ejaculation	Orgasm	Libido sex.
Yes	26 (74.3%)	— (—)	— (—)	2 (7.1%)	22 (75.9%)	2 (6.9%)	1 (3.6%)	6 (26.1%)
No	9 (25.7%)	35 (100%)	35 (100%)	26 (92.9%)	7 (24.1%)	27 (93.1%)	27 (96.4%)	17 (73.9%)
Sum	35	35	35	28	29	29	28	23
No data	—	—	—	7	—	—	1	6
Total	35	35	35	35	29	29	29	29

TABLE III

Frequency of Erection, Ejaculation, Orgasm and Libido Sexualis in Male Paraplegics with Complete Flaccid Paralysis in Stages II and III

	Stage II				Stage III			
	Erection	Ejaculation	Orgasm	Libido sex.	Erection	Ejaculation	Orgasm	Libido sex.
Yes	1 (4.8%)	— (—)	— (—)	— (—)	6 (31.6%)	2 (11.1%)	— (—)	1 (5.6%)
No	20 (95.2%)	21 (100%)	21 (100%)	20 (100%)	13 (68.4%)	16 (88.4%)	18 (100%)	17 (94.4%)
Sum	21	21	21	20	19	18	18	18
No data	—	—	—	1	—	1	1	1
Total	21	21	21	21	19	19	19	19

interest in it', 'I have experienced too many frustrations' or 'I am afraid of failure'. On the other hand 'the libido in general' was alike in young men of the same age.

TABLE IV

Frequency of Erection in Male Paraplegics with *Complete* Spastic or Flaccid Paralysis

Authors (year)	Amount of cases			Type of paraplegia
	Total No.	Cases with erection		
		No.	%	
Own cases Stage II	35 21	26 1	74.3 4.8	Spastic Flaccid
Sum	56	27	48.2	Spastic and flaccid
Own cases Stage III	29 19	22 6	75.9 31.6	Spastic Flaccid
Sum	48	28	58.3	Spastic and flaccid
Horne <i>et al.</i> (1948)	10	5	50.0	Spastic and flaccid Spastic and flaccid Spastic and flaccid Spastic
Munro <i>et al.</i> (1948)	50	33	66.0	
Talbot (1949)	105	55	52.4	
Money (1960)	14	11	78.6	
In comparison <i>incomplete</i> paraplegia Talbot (1949)	95	72	75.8	Spastic and flaccid

SUMMARY

We can confirm the data which had already been reported by other investigators (Table IV). It is difficult to explain why erection in cases of flaccid paralysis appeared. In these cases perhaps a restoration of sacral connections (S2-S5) has to be considered.

ZUSAMMENFASSUNG

Wir können die Befunde anderer Untersucher bestätigen. (Table IV) Es ist schwierig zu erklären, warum Erektion in Fällen mit schlaffer Lähmung erfolgen. Man muss vielleicht ein Wiederherstellung sakraler Verbindungen (S2-S5) in Betracht ziehen.

RÉSUMÉ

L'érection apparue dans les cas des paraplégies flasques présentés est vraisemblablement due à une récupération des réflexes sacrés (S2-S5).

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Discussion

CHAIRMAN—Dr. D. CHESHIRE. With your permission, I will presume to begin this morning's session in a manner which differs from our programme. The reason for this springs directly from the very thought-provoking paper which Miss Göller of Heidelberg delivered to us last night. This paper, as those who were present will remember, was related to pregnancy and delivery in paraplegic and tetraplegic women, and the point that particularly struck home in a number of places was that two women were delivered of grossly brain-damaged children. One of these children was thought to be the result of spinal cord injury occurring in the first trimester, with regard to the other, it was thought that the damage to the infant had occurred during a prolonged threatened abortion and was dissociated from spinal cord injury. As is so common in good scientific meetings, the discussion went on long after the formal session closed, and a group of us felt that this was a subject which lent itself to the type of approach which in our Society was started by Michaelis, whereby one centre or individual should set out to circularise colleagues and collect information on a world-wide basis. We all know on the basis of some small experience of our own, some larger experience of Sir Ludwig's, that the paraplegic woman can conceive, carry and bear a normal child. But our experience individually is small. The proposal that this small group of us who were talking last night would like to make is that, because this originates from Heidelberg and Miss Göller is particularly working on this, we would suggest to the Society that Heidelberg should circulate, not necessarily to all members—I think this would be unnecessary—but all Centres, and invite all Centres to send to Heidelberg details (1) of women who sustained spinal cord injuries in the first trimester, and include details of abortions, both spontaneous and induced, and the children delivered at or near term, giving details as to the normality or abnormality of these children, (2) of women sustaining spinal cord injuries in the second and third trimesters of pregnancy—again giving details of still-births and normality and abnormality of children, and (3) of women becoming pregnant and having children after spinal cord injury. We are not disputing the validity of the previous work that has been done, but it was our feeling last night that it is only by collating together a large number of normals, that none of us has had enough experience of our own, that we can see the significance, the percentage, the incidence of the abnormals. But, ultimately, I think that what this is aimed at is an attempt to collect together a volume of information which will permit us to say to our obstetrical colleagues that spinal cord injury in the first trimester is or is not a significant risk of damage to the foetus which should or should not be an indication for termination of pregnancy, and this is something that at the moment, those of us talking last night felt was a gap in our knowledge.

Sir LUDWIG GUTTMANN. I think this is an excellent idea. We know now quite a lot about normal births given by paraplegics during and after their paraplegia. We