

plastic operation .....	38 cases
3) Resection of Epileptogenic focus (Cortico-graphic research) .....	16 cases
4) Removal of chronic subdural hematoma .....	16 cases
5) Skull and Dura plastic or Transplantation with cortical Irrigation .....	33 cases
6) Stereotaxic operation .....	2 cases
7) Hemispherectomy .....	2 cases

After operation, treated various physical rehabilitation by doctors, nurses, families and therapists.

Results of these neurosurgical treatments are shown in Table 4:

Table 4. (Result of operation)

1) Markedly effective .....	6%
2) Effective .....	79%
3) Slightly effective .....	9%
4) No change .....	5%
5) Worse .....	1%

#### **k-14. Studies on Propriocepto-spinal Reflexes with special Regards to Body Equilibrium**

##### **—Some Observations on Deviation in Stepping due to Lesion in Cervical Soft Tissues with or without Neck Fixation—**

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The aim of this experiment is to elucidate what kinds of reflexes can be originated from the cervical proprioceptors in regards to body equilibrium.

In order to reduce abnormal excitability as well as to correct imbalance of excitability of the cervical soft tissues, fixation of the neck with a brace (polyneck) was made for vertigo cases with unilateral neck soreness and tenderness. Equilibrium tests including tests of righting reflex (Mann's test), of drift reaction (Stepping test), and of oculomotor system (Test optic nystagmus) were carried out before, and during neck fixation respectively. The following facts were noted:

1) Unilateral neck soreness and tenderness were much relieved of when the neck brace was applied.

2) Improvement of both righting function and optic equilibrium ability was simultaneously restored. It should be noted that with the neck fixation, patients

were alleviated of ataxia during stepping as well as stepping deviation. Stepping deviation of a subject with a neck brace was opposite in direction to that when without neck brace.

Based on the above findings, it is assumed that a close relationship might exist between excitability of the cervical soft tissues and types of reflexes of proprioceptive origin. In term of body equilibrium, reflexes from the cervical proprioceptors may be classified into two types. One type is caused by a marked imbalance of excitability between bilateral cervical soft tissues with a marked stepping deviation accompanied by a notable ataxia in eye and body reflexes. The other type is elicited by a slight imbalance of excitability between them with a slight stepping deviation not accompanied by any signs of ataxia in eye and body reflexes. The relationship between two types of reflexes of proprioceptive origin is believed to be very similar to the one between the disturbed and the coordinated labyrinthine reflexes reported by Fukuda.

### **k-15. Giddiness in Patients with Head and Neck Injuries**

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Dizziness is one of the commonest symptoms the patients with head injury and whiplash injury may experience.

Patients of head injuries and of whiplash injuries were analyzed with respect to giddiness, roentgenographic and neuro-otologic findings and results of conservative treatments.

21.1% of 385 cases of head injuries and 18.8% of 410 cases of whiplash injuries were experienced giddiness.

Although little statistically significant difference could be in correlation of the incidence of giddiness in the head-injury and whiplash-groups between presence or absence of posttraumatic unconsciousness, there was a tendency to show the greater occurrence, the longer the duration of unconsciousness.

Correlation between occurrence of giddiness and location of the blow to the head and the fracture of the skull in head injury group, and to direction of the impact in whiplash injury group is shown in Table 1, 2 and 3.

In this study one of the most effective in conservative treatments to the posttraumatic giddiness is block of bilateral cervical stellate ganglions with procain, particularly in younger adult of head injury, with 1) no instability in the lower part of the cervical spine and 2) spontaneous nystagmus, and in younger adult of whiplash injury with 1) no limitation of movements of the cervical spine 2) spontaneous nystagmus and 3) abnormalities in caloric nystagmus.