died in a few days for all our every effort either operative or conservative.

It is of paramount interest to have made it clear that the cardiac output differs significantly between the survival and fatal, and that the difference can be noted as early as the first 12 hours following head injury.

2) Correlation of the cardiac indices with oxygen consumption.

Correlation of the cardiac indices with oxygen consumption (VO_2/m^2) was significant.

3) Correlation of cardiac indices with blood volumes.

The blood volume, below the plateau level of 2.0 to 2.5 l/m^2 , decreased keeping pace with the decrease in the cardiac output.

4) Correlation of the cardiac indices with respiratory insufficiency.

The cardiac indices appeared to be not always correlated with PaO_2 , A-aDO_2 , and Qs/Qt . However, in some identical patients, the cardiac indices decreased significantly when receiving the assisted or controlled respiration of 100% O_2 , compared with the time of spontaneous room air respiration.

5) Correlation of the cardiac indices with the difference of oxygen content in the arterial blood and mixed venous blood.

The increased $\text{CaO}_2\text{-CvO}_2$, which is said to imply the formation of systemic shunts, was inversely proportional to the increase in the cardiac output.

82. The Nation-Wide Study of Traumatic Sequela Cases by Traffic Accidents Conducted from Viewpoints of Neurology and Neurological Surgery

Shigeo WATANABE, M. D.

*Department of Neurosurgery of National
Tachikawa Hospital and Chuo Helath
Insurance Hospital*

Takeshi TAKAOMI, M. D.

National Institute of Mental Health

Mitsuaki ISHIKAWA, M. D.

The Japanese Council of Traffic Science

This is a statistical report on the results of our nation-wide study conducted for approximately two years of the 'Traumatic Sequela cases' by traffic accidents coming under the provisions of the Automobile Liability Security Law.

In carrying out this survey, all Japan is divided into fifteen geographical regions, and made a technical study strictly from the standpoints of 'Neurological surgery,' 'Neurology' and 'Psychiatry.'

The gist of the findings of our study is as follows:-

Of the total cases, those who developed symptoms of 'Unconsciousness' amounted to 52.6%, and of the first class cases, those who remained unconscious for more than

24 hours accounted for 55.3%. 37.6% of the total cases were subject to 'Headaches,' and 51.4% of the first class cases showed the same symptoms. The half of the total cases complained of 'Occipitalgia.' 33.9% of the total cases showed the signs of either 'Nuchalgia' or 'Neck pain' or both, and of the first class cases, this percentage reached 63. Those who suffered from 'Visual disturbance' were 14.5% of the total cases and 33.5% of the first class cases. As to 'Hearing disturbance,' 8.6% of the total cases and 16.4% of the first class cases complained of the symptom, while as to 'Speech disorder' 5.7% of the total cases and 38.5% of the first class cases were the sufferers. Those who have 'Chewing disturbance' were 8.1% of the total cases and 20.6% of the first class cases. The cases of 'Vertigo' and 'Dizziness' caused by balance disturbance' were 8.1% of the total cases and 20.6% of the first class cases. The cases of 'Vertigo' and 'Dizziness' caused by balance disturbance amounted to 22.3% of the total figure and 58.3% of the first class cases. 78.4% of the total cases suffered from this symptom occasionally. 3.9% of the total cases and 15.3% of the first class cases came to be attacked by 'Epilepsy.' Those who showed the symptom of 'Abnormality of E. E. G.,' not accompanying epileptic attack accounted for 3.9%. This symptom was widely recognized throughout all classes of the cases ranging from the first to the twelfth. 'Movement disorder of upper extremity' was prevalent among 8.5% of the total cases and 14.0% of the first class cases, while 'Movement disorder of lower extremity' was perceived among 15.6% of the entire cases and 17.2% of the first class cases. and 38.8% of the first class cases. Those who had 'Subjective mental symptoms' were numerically caught as under:—

35.7% of the entire cases and 80.5% of the first class cases were 'Nervous.' 24.9% of the total cases and 73.5% of the first class cases were suffering from 'Insomnia.' 28.2% of the total cases and 62.6% of the first class cases were 'Forgetful.' 28.6% of the total cases and 69.0% of the first class cases were 'Impatient.' 51.1% of the whole cases and 90.0% of the first class cases were 'Easy to get fatigued.'

As regards the character changes where 'Objective symptoms' were apparent, the following results were obtained:—

11.3% of the total cases and 20.6% of the first cases were 'Forgetful.' 4.3% of the total cases and 14.3% of the first class cases grew 'Senile.' 2.3% of the total cases and 9.7% of the first class cases were 'Untidy.' 14.4% of the total cases and 31.9% of the first class cases were 'Short tempered.' 2.3% of the total cases and 5.4% of the first class cases were 'Reserved.' 30% of the total cases and 5.8% of the first class cases developed character changes other than those which are stated above. 'Disturbance (Declining) in Sexual desire' were seen among 9.8% of the total cases and 13.1% of the first class cases. 3.3% of the total cases of women were suffering from 'Irregular menses.'

All the cases of 'Traumatic sequelae' mentioned above are of more than four year-old 'Anamnesis.' The neurological and mental changes caused by them are rich in variety as given therein. Among these disorders there are such ones which require neurosurgical treatments as 'Focus-epilepsy,' 'Central motility disorder,' and 'Aphasia.' In any case, all of these neurological and mental changes need professional and special treatments. In these cases, the treatments of 'Neurology,' 'Neurosurgery' and 'Rehabilitation-medicine' should be stressed.