the previously reported cerebral circulation, renal circulation, internal secretion, water electrolyte metabolism, etc., it is evident that cardiopulmonary circulation is in agreement with the latter in their periodical alterations, except for the delayed recovery of cerebral circulation and metabolism in severe cases.

52. Experimental Studies of Cerebral Circulation and Cerebral Metabolism in the Early Stage after Severe Head Injury

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The changes of pathological physiology in the early stage after severe head injury in dog made by blank shots with air rifle were observed: especially the changes of oxygen availability and EEG in thalamus, blood pressure, blood flow, cerebro-spinal fluid pressure, A02, ERO2 and A-V02 diff.

Oxygen availability and blood flow significantly increased in parallelism with blood pressure elevation and increase of cardiac output immediately after head injury, and decreased remarkably with failing the blood pressure.

One hour after head injury, oxygen availability and blood flow showed the lowest value. At this time slow activity in EEG appeared more frequently, and then oxygen availability and blood flow began to increase gradually, but three hours after injury not yet recovered to the level of before injury.

On the other hand, cerebral gas metabolism, namely A02, A-VO2 and ERO2, reduced slightly three hours after injury.

As such changes of cerebral circulation and cerebral metabolism may be important ones which have close relations with changes in the early stage after severe head injury in man, we intend to analyse those changes experimentally hereafter.