

Innovative Ultrasound Technologies as an Evidential Basis in the Resuscitation Practice of Comatose Patients and Apallic Syndrome (a vegetative condition with the prospect of restoring and regression of neurological deficits)



Authors:

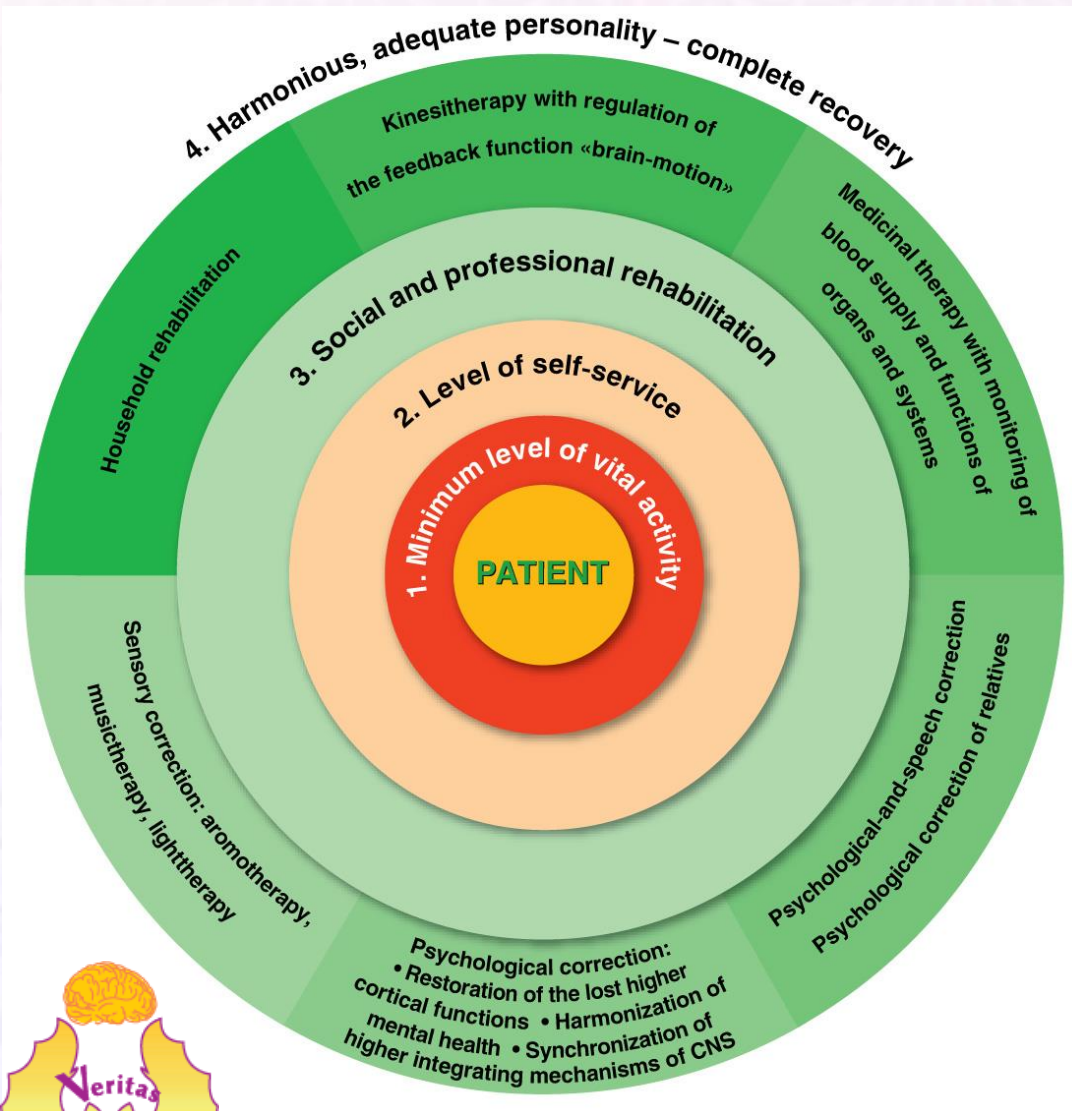
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Applied application of brain ultrasound methodology and assessment of displacement of arteriovenous and hydrodynamic cerebral balances to objectify the degree of cerebral dyshemia in critically ill patients



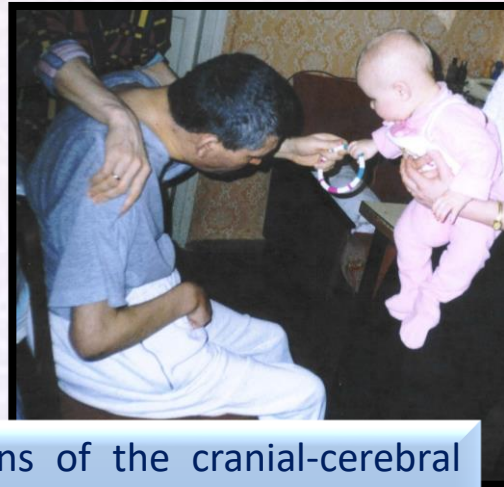


Applied clinical-instrumental
Angio- duplex and triplex
ultrasound
of the cerebral regional
reservoir with the
formation of an individual
algorithm for restoring
an adequate level of
cerebral blood supply



Results

We have made **ultrasound angio-examination** of the state of **the brain and cerebral arteriovenous balance** in **233 patients in a vegetative state (apallic syndrome)**, who were considered incurable after a long-term cerebral coma (duration from several weeks to 1-4 years of various etiologies (traffic accident, head injury, drowning, electrocution, after transferred viral and bacterial meningoencephalitis in children and adults, etc.



residual signs of the cranial-cerebral injury and apallic syndrome for 6 months.

5 years of long-term intensive multidisciplinary neurorehabilitation.



At the time of the initial examination of cerebral hemodynamics the ultrasound method has register hemodynamic signs of centralization of blood circulation, specific patterns of expressed ischemia both in the projection of the common carotid arteries (62% of patients) and in the projection of practically in all cerebral arteries with a residual level of blood supply to the brain at the level of the siphon of internal carotid artery 5-10% (78% of patients) and 25-40% (17% of patients), 35-50% (5% of patients), expressed obstruction of venous outflow from the cranial cavity (87% of patients) and subcritical patterns of intracranial hydrohemodynamic conflict in anterior cranial fossa (82% of patients) and posterior cranial fossa (47% of patients).



Ultrasound diagnosis of the condition of the cerebral arterio-venous channel and monitoring during intensive Angiotherapy and psychoneurorehabilitation were crucial in restoring adequate cerebral blood flow.



Consequences of acute opened penetrable CCI, injury-crash of the brain, operation for trepanation of skull with deleting of cerebral detritus and free fragments of fractures of frontal bones, plural intracranial hematomas, apallic syndrome.

3 years of long-term courses of intensive multidisciplinary neurorehabilitation.



Innovative Vascular Technology

"Angiomarkers of the vascular brain reservoir"
the original technique by Lushchyk Ulyana, MD, Acad. of UATS,
(State Patent of Ukraine №85052 dated 11/11/2013)

The duration of intensive Angiocorrection and Angiotherapy with multidisciplinary psychoneurorehabilitation is from six months to 5 years. Minimum self-service program. The maximum program is social and professional rehabilitation.



Posttraumatic – ischemic damage of CNS of the severe level in the form of the apallic syndrome for 2 years, visual agnosia.
9 years of long-term intensive multidisciplinary neurorehabilitation.

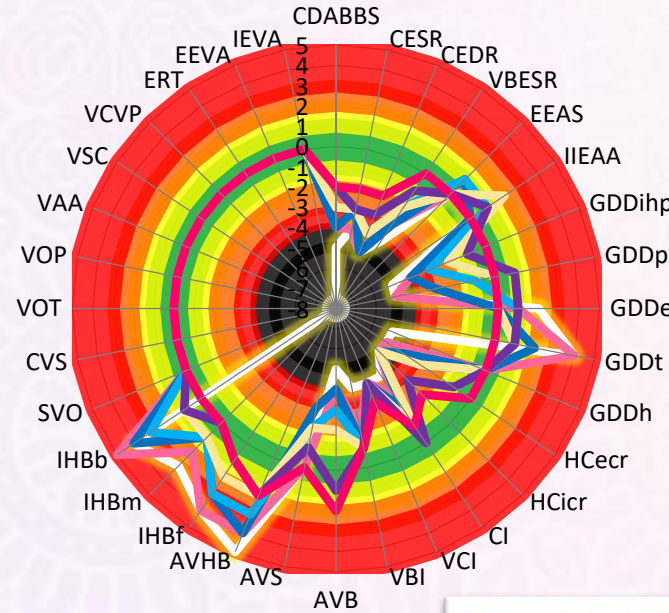


Innovative Vascular Technology

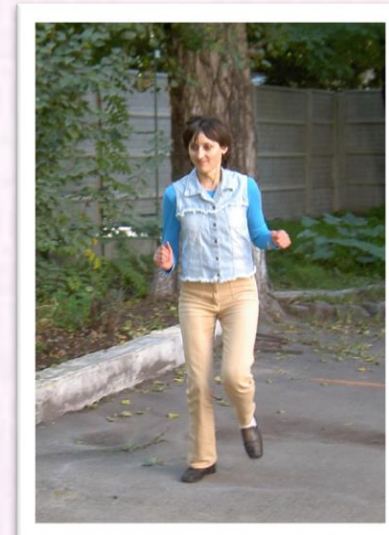
"Angiomarkers of the vascular brain reservoir"

the original technique by Lushchyk Ulyana, MD, Acad. of UATS,
(State Patent of Ukraine №85052 dated 11/11/2013)

Case patient KG, f., 13y.o
At the beginning of treatment – residual cerebral blood flow 5% of the age norm, critical ICH, which caused epistatus for 2 months in the intensive care unit.



- normal level of blood supply
- dangerous for life
- subnormal
- subnormal
- critical
- critical
- dangerous for life
- Check up from 01.1999
- 04.1999
- 09.1999
- 10.1999
- 12.1999
- 01.2000



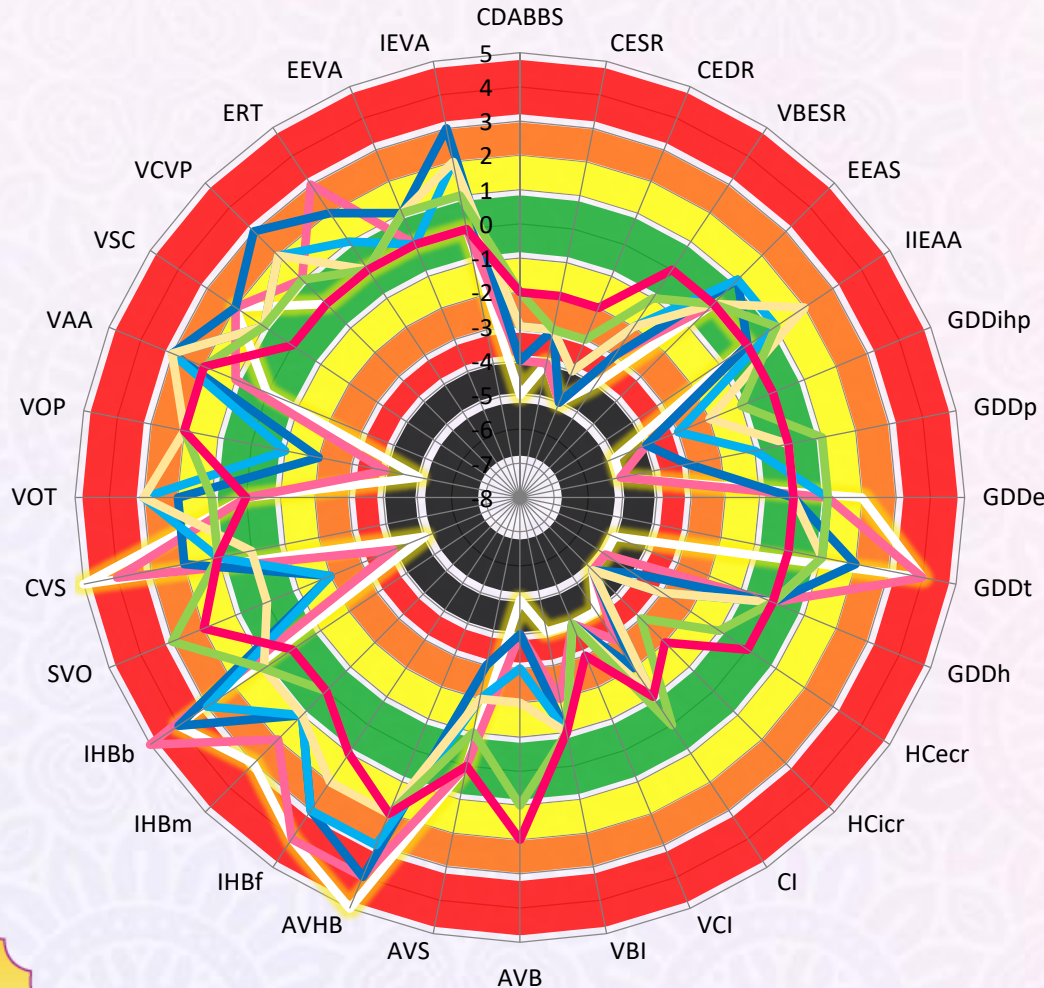
Innovative Vascular Technology

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Case patient KG, f., 13y.o
Dynamics of treatment



- normal level of blood supply
- dangerous for life
- subnormal
- subnormal
- critical
- critical
- dangerous for life
- Check up from 01.1999
- 04.1999
- 09.1999
- 10.1999
- 12.1999
- 01.2000
- 09.2003



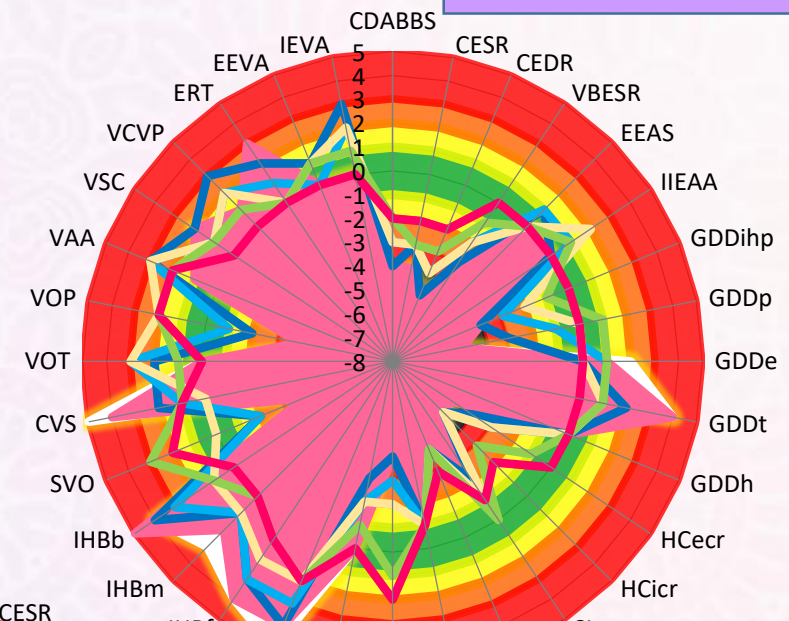
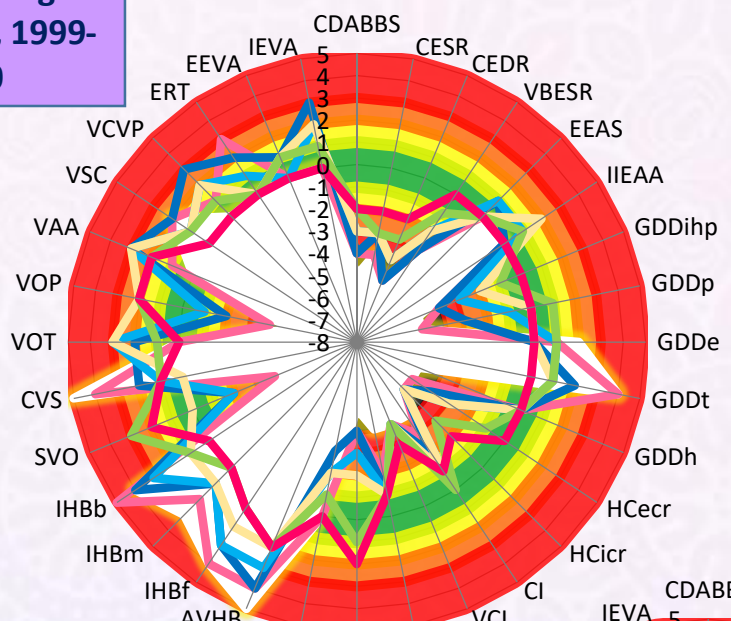
Venous outflow as a sign of centralization of blood circulation in critical conditions.



Dynamics of sanogenic reconstruction of the arteriovenous cerebral channel

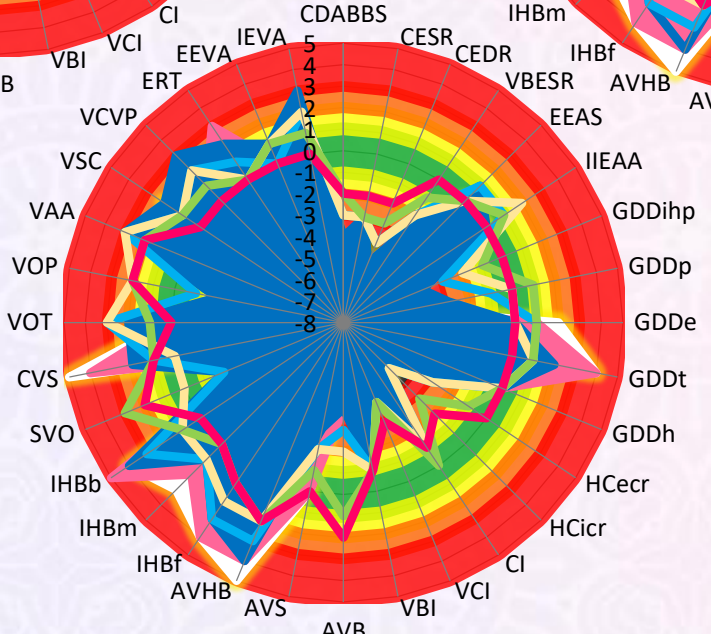
Case patient KG, f., 13y.o
Dynamics of treatment

The beginning of treatment, 1999-2000

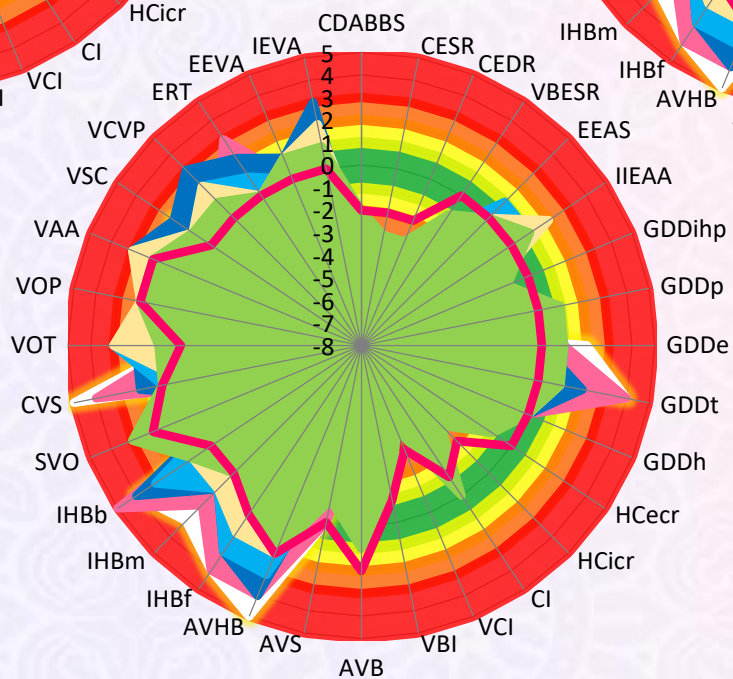
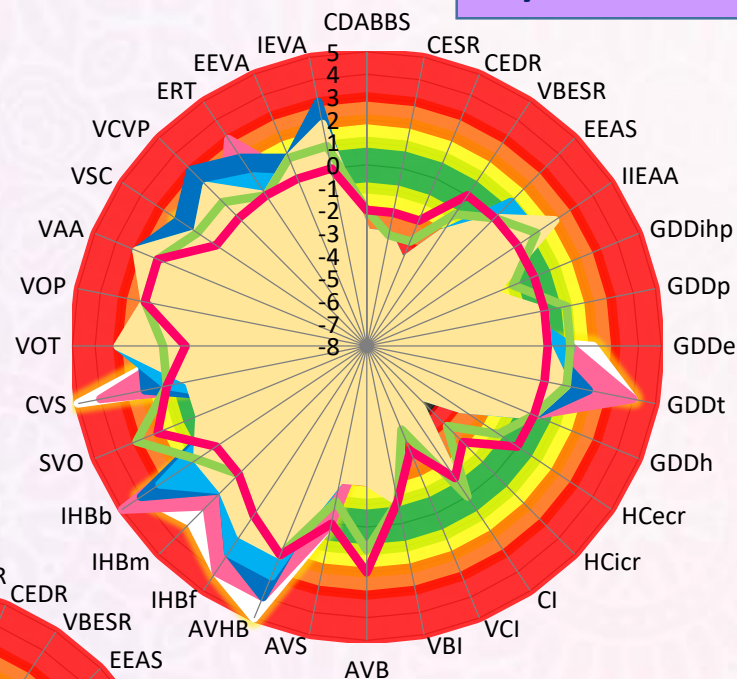
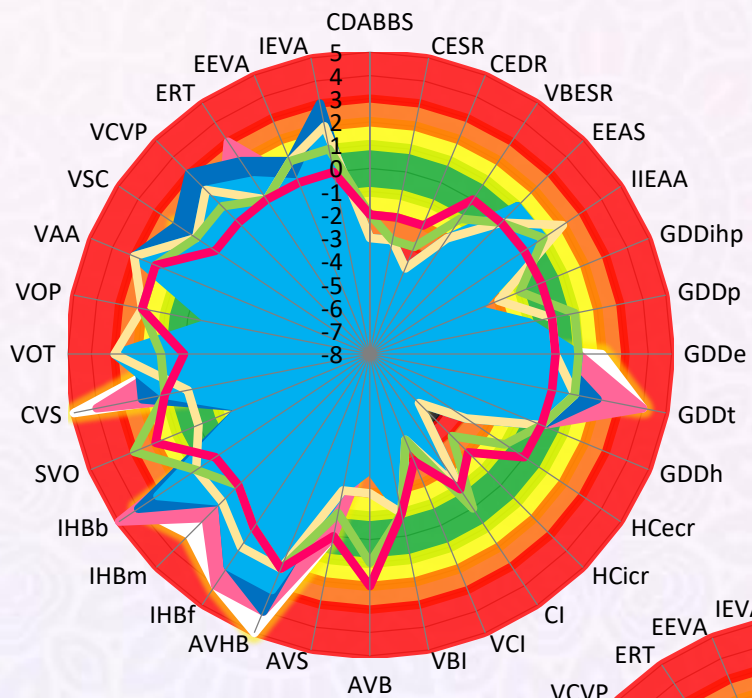


The first dynamics 1999-2000

The continuing of treatment, 1999-2000

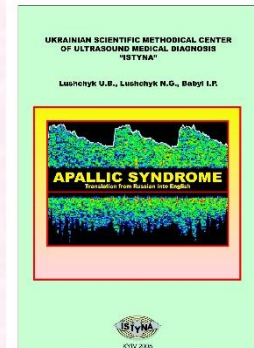


Dynamics of correction of the cerebral vascular bed of arteriovenous and hydrohemodynamic balance



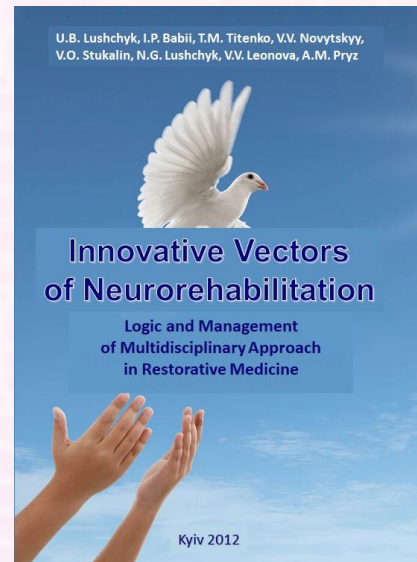
Results

- Owing to **ultrasound angiodiagnosis**, it is possible to
- ✓ individually select **effective medical agents** under ultrasound control,
 - ✓ form them into an **angiotherapeutic combination**, and thanks to their application **restore the level of cerebral blood supply to 60-70%** of the age norm,
 - ✓ gain **stable consciousness and move to an intensive level of psychoneurorehabilitation and Angio-Neurocorrective treatment** with ultrasound-Angioprogram control of hemodynamic parameters of sanogenic reconstruction of the cerebral arteriovenous channel and minimization of the existing psycho-speech-motor deficit in both children and in adults and gradually bring them to the level of **self-care as a minimum body recovery program** after a severe brain injury.



Conclusion

Intensive care conditions require the use of ultrasound in the angiomode in order to verify the depth of the intracranial arteriovenous hydrohemodynamic conflict and search for an adequate individual approach to solving brain problems and restoring systemic and regional cerebral blood circulation in acute patients in the ultrasound-monitoring mode of monitoring sanogenic changes in order to stabilize functions of vital organs - heart, lungs and brain and restoration of consciousness in the patient.



Thank you for attention!

May the Guardian Angel protect each of us,
manage peace on the Earth!



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