

COMPUTER TOMOGRAPHY IN PATIENTS WITH TRANSITORY DISORDER OF BRAIN CIRCULATION (TDBC)

V. Drenski, S. Kovachev

Key-words: transitory disorder of brain circulation – computer tomography – clinics – diagnosis

The diagnosis of transitory disorders of brain circulation (TDBC) presents an extraordinarily important problem for neurological practice (1, 2).

During the recent decade, TDBC or so-called "small brain insults" at the time (3) are an object of intensive research. According to Freedman (1969) (cited after 4), morbidity rate is 1.6/1000 for males and 0.9/1000 for females.

D. Hadzhiev et al. (5) report an epidemiological study in Tolbouhin district where morbidity rate reaches up to 1875/10000 inhabitants aged over 60 years. In the literature available, TDBC is considered a risk factor facilitating brain infarction development in 15–40 per cent of the patients (8, 12, 13). Besides myocardial infarction is a frequent cause of lethal outcome in the first month after TDBC (8, 13). These facts allow some authors to accept that TDBC is a risk factor for cardiac diseases, too (13). TDBC diagnosis is first of all based on anamnestic data and clinical picture. All that determines the search for objective, instrumental and CT criteria for TDBC diagnosis.

The aim of the present investigation is to compare the clinical neurological picture with CT findings in TDBC patients with a view to kind diagnosis.

Material and Methods

CT study was carried out in total of 88 clinically diagnosed TDBC patients. During examination patients were not having any neurological complaints. When clinically diagnosing one takes into consideration risk factors, the number, interval and duration of paroxysms, too. Patient's age varies between 14 and 76 years, at the average 53 years. Patient's distribution according to sex and age is presented on table 1. CT investigation is carried out by means of "SIRETOM-I" apparatus. Sections are 5 and 10 mm thick. Image is archived on polaroid films. CT is done on the 2nd and 90th day after the last attack.

Results and Discussion

One can see on table 1 that male patients prevail in number. Clinical manifestations established by both anamnesis and neurological status are related to carotid system in 51 patients, to vertebro-basilar one in 26, and to both systems combined in 11 cases.

We observe the following clinical manifestations of TDBC when carotid system is concerned: 1) hemiparesis in 14 cases (28.0 per cent); 2) hemiparesis, aphasia, apraxia and agnosia in 12 (23.0 per cent); 3) hemiparesis with hemihypesthesia in 12 (23.0 per cent); 4) hemiparesthesiae in 5 (10.0 per cent); 5) central palsy of the facial nerve in 3 (6.0 per cent); 6) aphasia with hemiparesthesia, alexia, agraphia, akinetic mutism in 2 (4.0 per cent); 7) hemianopsia with hemiparesis in 2 (4.0 per cent); 8) aphasia and reduced concentration of attention in 1 (2.0 per cent) (i.e. a total of 51 patients or 100.0 per cent).

Table 1
Patients' distribution according to sex and age

Age / years	Sex				Total
	males		females		
	n	%	n	%	
14 - 24			1	3.2	1
25 - 44	8	14	7	22.6	15
45 - 60	33	58	18	58	51
61 - 74	16	28	3	9.9	19
75 - 90			2	6.3	2
total	57		31		88

We establish the following clinical signs of TDBC when vertebro-basilar vascular system is concerned: 1) headache, vertigo, ataxia in 14 patients (54.0 per cent); 2) vertigo, dysarthria, oral automatisms, amblyopia in 8 (31.0 per cent); 3) ataxia, buzzing in 3 (11.0 per cent); 4) bilateral visual disorders in one case (4.0 per cent); (i.e. a total of 26 patients or 100.0 per cent).

We observe the following symptoms of TDBC when both carotid and vertebro-basilar systems are affected: 1) aphasia, ataxia, brain-stem otoneurological syndrome in 4 patients (37.0 per cent); 2) hemiparesis, motor Jackson, vertigo syndrome - in 3 (27.0 per cent); 3) headache, manifested hemiparesis, flashes in front of the eyes, diplopia in 2 (18.0 per cent); 4) transitory psychic disorders, ataxia, headache in 2 (18.0 per cent) (a total of 11 cases or 100.0 per cent).

CT investigations demonstrates pathologically changed density in 19 patients (21.0 per cent of the cases). There is hypodensic lesion in 17 cases. An intracerebral haematoma is observed in one patient but a tumour in another one.

Table 2 demonstrates the distribution of CT findings.

Table 3 shows the distribution of CT findings according to the number of attacks. A total of 57 TDBC patients are with one attack only but 31 ones have more attacks. The duration of

Table 2
Distribution of CT findings

Symptoms due to lesion in the vascular system	CT finding +			Total		
	TDBC	haematoma	tumours	n	%	
carotid system	8			45	51	58
vertebro-basilar system	5			21	26	30
both systems	4	1	1	5	11	12
total	17	1	1	69	88	100

these attacks is between 1–2 min and 24 hours. Very seldom it reaches up to 48 hours. Interval between attacks is less than 30 days in 45 patients, up to 60 days in 27, and between 60 and 90 days in 8. CT proves a slight cortical atrophy to a moderate extent in 26 patients (29.0 per cent of the cases).

Table 3
Distribution of CT findings according to the number of attacks

Attacks	CT (+)	CT (-)	Total
with 1 only	12	45	57
with more than 1	7	24	31
total	19	69	88

Some authors (6) outline the necessity of CT examination in TDBC because they detect sometimes morphological changes in such patients. L. Candilise et al. (7) find out on CT a relatively large percentage – 33 per cent – of permanent fields with abnormal density. According to G. Ladurner et al. (10), hypodensic lesion is observed in 18.0 per cent but cortical atrophy in 44.0 per cent of TDBC patients. Other authors (9) report, however, that CT does not possess sufficient information value when TDBC is concerned.

The analysis of our results reveals a relatively good dependence between clinical symptoms and CT findings. This coincides with the opinion of authors cited above. In our TDBC patients we establish positive CT finding in 21.0 per cent of the cases which is in the limits of already reported data in literature, i.e. between 18 and 33 per cent (7, 10, 11). The relatively high percentage of pathological findings in patients with clinical symptoms due to affection of both systems mentioned can be explained by a more diffuse lesion of the whole vascular cerebral system when there is collateral circulation insufficiency. The presence of intracerebral hematomas taking their course as TDBC stresses that it is possible to make errors when applying anticoagulant therapy according to a cliché.

We can conclude that it is necessary to realize CT examination in any patients with clinical data about TDBC, especially prior to anticoagulant therapy administration as well as because of atypical clinical course of some intracerebral hematomas and brain tumours.

REFERENCES

1. Антонов, Н., С. Божинов. Диференциална диагноза на неврологичните заболявания. София, Медицина и физкултура, 1980, 49–53.
2. Митков, В. Спешна неврология. София, Медицина и физкултура, 1982, 115–119.
3. Настев, Г. Мозъчен инсулт. София, Медицина и физкултура, 1972, 256–268.
4. Хаджиев, Д. Латентна и преходна недостатъчност на мозъчното кръвообращение. София, Медицина и физкултура, 1976.
5. Хаджиев, Д. Съдови заболявания на нервната система. София, Медицина и физкултура, 1979, 20–38.
6. Brustman, M. E., G. E. Brayer. Neurological Surgery. Internat. Congr. Ser. No 433, 1978, 18–21.
7. Candilise, L., P. Perrone, G. Scott. In: Proc. 9th Internat. Salzburg Conf., 27–30. IX. 1978.
8. Cartalidge, N. E. F., J. P. Whisnant, R. Eivaback. *Mayo Clin. Proc.*, 52, 1977, 117–120.
9. Kingsley, D. P. E., E. W. Radue, E. Duboulay. *J. Neurol. Neurosurg. Psychiat.*, 43, 1980, No 3, 193–197.
10. Ladurner, G., K. Jeindl, C. Shulider. *Fortschr. Neurol. Psychiat.*, 51, 1983, No 3, 124–127.
11. Perrone, P., L. Candilise, G. Scott. *Eur. Neurol.*, 18, 1979, No 4, 217–220.
12. Sickert, R. G., C. H. Millikan, J. P. Whisnant. *JAMA*, 176, 1961, No 1, 19–22.
13. Toola, J. F., C. R. Janeway, et al. *Neurology*, 28, 1978, 746–753.

КОМПЬЮТЕРНАЯ ТОМОГРАФИЯ У БОЛЬНЫХ С ПЕРЕХОДНЫМ НАРУШЕНИЕМ МОЗГОВОГО КРОВООБРАЩЕНИЯ

В. Дренски, С. Ковачев

РЕЗЮМЕ

В работе авторы анализируют компьютерно-томографическое исследование переходных (ишемических) нарушений мозгового кровообращения у 88 клинически диагностированных больных с переходным нарушением мозгового кровообращения. Средний возраст больных – 53 года (от 14 до 76 лет). Компьютерно-томографическое исследование проводилось посредством аппарата „Сиретом Г” при толщине срезов 5 и 10 мм. Оно проводилось также от второго до девяностого дней после последнего приступа. Результаты компьютерно-томографического исследования показали патологическое изменение плотности у 19 больных (21% всех больных). У 17 больных была установлена гиподенсная лезия, у одного – интрацеребральный гематом, а у одного больного – опухоль мозга. Анализ собственных результатов позволяет авторам сделать заключение о сравнительно хорошей зависимости между клинической симптоматикой больных и компьютерно-томографической находкой. Среди больных с переходным нарушением мозгового кровообращения компьютерно-томографическая находка устанавливается у 21%. Этот процент находится в пределах количественных показателей, сообщаемых в литературе по рассматриваемым вопросам, где он варьирует от 18 до 33%.