

General practitioner & practice

Postgraduate training aimed at day-to-day general practice

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Bent over concussion of the brain

Inspired by the Project Plan of the Netherlands Association of General practitioners, a group of general practitioners in the Nijmegen area have met monthly for a few hours since early 1979. The purpose of these meetings is to compare one's actions in the face of common syndromes with those of others; to learn from each other and, if necessary, to chart a new policy. This is a report on the first few meetings.

Introduction

So as not to make too difficult a start, we selected an „easy” subject: concussion of the brain. The initial procedure followed at our meetings seemed to justify this optimism. The participants managed to paint a vivid picture of the presentation of the patient with the aid of examples from actual practice; and the information requested seemed adequate:

- loss of consciousness?
- headache and vomiting?
- type of accident?
- retrograde amnesia?

The participants in the end agreed on the necessity of a neurological examination and, possibly, of an X-ray of the skull.

We decided to postpone dealing with the most difficult question – concerning the value of this information – until a later stage; and our „plan of action” (*table 1*) comprised more questions than

Table 1. The „plan of action”

When therapy?
Wake the patient at night.
Avoid exposure to noise and light.
Is patient allowed to read?
Prevent headache as residual symptom.
Watch for dullness, changed behavior.
When to refer, and with what consequences?
When to ambulate?
When is the patient cured?

actions – a fact we took for granted at the time.

Four or five of us here, six or ten of us there, we tackle a general practitioner's problem. explain to each other what it implies and how we handle it. We do a piece of research and, in other ways too, are for a while deliberately recording questions and answers that occurred to us. (Dr. C. A. de Geus about the Project Plan of the Netherlands Association of General Practitioners.)

The question of how to define concussion of the brain had a sobering effect and prompted long discussions.

By writing down in free association the images and ideas that occurred to us concerning the presentation and the information required in a case of suspected concussion of the brain (*table 2*), we gained a better insight into our mode of functioning. We saw that on the one hand we were looking for characteristics of concussion of the brain, while on the other hand we were trying to eliminate other conditions (fractured skull, subdural hematoma, contused brain). We established that the loss of function is primarily localized in the brain stem, not in the cortex (*Biemond*), and finally outlined the following characteristics as indispensable for the diagnosis:

- condition resulting from an acute blunt injury;
- loss of consciousness during some time;
- retrograde amnesia, that is to say: loss of memory covering a period preceding the accident;

- absence of focal neurological symptoms;
- vegetative symptoms.

A case

We knew from the epidemiological data supplied by the Nijmegen University Institute of General Practitioners that a general practitioner with a practice of 2800 patients is likely to see about fifteen concussions of the brain per annum. This number seemed large enough to warrant the decision that all participants were to contribute one or several new patients with concussion of the brain at the next meeting. Most of us could more or less identify with the case of Guido.

Guido C., aged 9, is carried into the surgery. His mother reports that Guido came home walking beside his bicycle. He was jittery and seemed to have had a bad fright. The story gradually coaxed from him was that neighborhood children had pulled him off his bicycle. The exact course of events did not become clear. Guido started to vomit after an hour. He is now complaining of headache and, when asked again, he says that he turned complete somersault. There seems to be some amnesia about the event. It does not become clear whether he did briefly lose consciousness.

Examination reveals excoriations in the face and a hematoma around the left eye. The pupils are isocoric and respond well to light. No blood is escaping from nose, ears or mouth. Knee-jerks and Achilles tendon reflexes are symmetrical and vigorous, and the plantar reflexes are according to Strümpell. The cranial X-ray discloses no visible fracture.

Table 2. Presentation and information

Way of falling
Rolling eyes
Amnesia
Head injury
Complexion
Restiveness
Nausea, vomiting
Dullness or loss of consciousness
Weeping immediately after injury
Blood loss
Bleeding from nose or ears
Groaning
Respiration
Patient holding his head
Headache
Patient upset

Concussion of the brain is diagnosed and the parents are advised to keep Guido in bed for three days. A house call is made the next day as agreed. Guido feels alright while he is lying down, but coming upright causes pain. The parents report with Guido at the surgery three days later. He no longer has any complaints; he has eaten well the past two days, and wanted to get up. That afternoon the family departed for Maastricht (about 60 miles away) by car, with Guido lying in the back. The journey was completed without problems. The next day the family departed for France. Guido participated in all the holiday activities. On two occasions he had brief headaches (these had sometimes occurred also before the accident).

A closer look

By testing the examples collected from actual practice for the above-mentioned „indispensable characteristics”, we learned two things. To begin with, the diagnosis „concussion of the brain” had been made too often. According to our own criteria, it had been right in only three of the fifteen cases. Since general experience shows that concussion of the brain is perceived by the patient as a serious condition, with often permanent consequences, we attached some importance to this finding. Moreover, we had the pleasant feeling of having learned to take a more critical look at our functioning, for the benefit of the patient. Secondly, our definition of the characteristics of concussion of the brain proved still to be insufficient. On the basis of our examples and a study by *Van 't Hooft*, we further qualified as follows:

- the injury need not involve the skull; any fall can cause concussion of the brain as a result of the jolt;
 - on second thought we abandoned our initial stipulation that loss of consciousness had to be of less than ten minutes' duration;
 - of the vegetative symptoms, only nausea now seemed obligate; weakness, pallor and fluctuations of temperature can be present as well.
- We discussed the neurological examination for a long time: what is the minimum required to warrant the statement that a neurological abnormality is or is not present? An inventory made of what the various participants did in actual practice revealed a wide diversity of action; only the patient's pupils received undivided attention (*table 3*). Most par-

Table 3. Examination in concussion of the brain, as carried out by eleven participants to eliminate neurological abnormalities.

	1	2	3	4	5	6	7	8	9	10	11
<i>Inspection</i>											
Alert reaction?			+			+				+	
Visible changes	+										
Hematoma	+										
Able to walk?			+								
Perspiring?		+									
Facial symmetry										+	
Consciousness										+	+
<i>Cranial nerves and coordination</i>											
Size of pupils L and R	+	+	+	+	+	+	+	+	+	+	+
Pupils, response to light	+	+	+	+	+	+	+	+	+	+	+
Pupils, convergence	+	+	+	+	+	+	+	+	+	+	+
Eye movements, nystagmus	+				+	+	+	+	+	+	+
Opening/closing of eyes	+										
Inflating cheeks	+	+	+	+							
Protrude/move tongue	+	+	+								
Move/turn head		+									
Fingertip-nose test		+					+				
Loosely waving hands		+									
Romberg sign		+		+		+				+	
<i>Peripheral reflexes</i>											
Biceps											
Triceps	+										
Radius	+										
Mayer				+			+				
Abdominal skin										+	
Knee-jerk	+	+			+	+	+	+	+	+	+
Achilles tendon		+			+	+		+	+	+	
Plantar	+	+	+	+	+	+		+	+	+	+
<i>Motor activity</i>											
Able to walk/stand			+	+		+					
Able to speak			+								
Strength of grip L and R		+		+			+				
<i>Pulse</i>											
	+			+	+					+	

participants, moreover, proved to be hardly able (if at all) to explain why they examined some features, and omitted others. Particularly in this respect the gaps in our knowledge became very apparent. Further study and deliberation by a few participants led to the following neurological examination model:

Eliminate left-right differences in cranial nerve functions:

- pupillary reflex;
 - normal eye position (3rd, 4th and 6th cranial nerves);
 - chewing motions (baring the teeth) (5th and 7th cranial nerves);
 - protrusion of the tongue (12th cranial nerve).
- The other cranial nerves are rarely dysfunctional.

Eliminate left-right differences in peripheral reflexes:

- symmetrical knee-jerks;
 - symmetrical biceps reflexes.
- In the initial phase of cerebral damage, a left-right difference in the knee-jerk occurs earlier than an abnormal plantar reflex. Moreover, coordination tests are often unreliable the first few days after an accident because the patient is too shaken.

Eliminate meningeal irritation:

- nuchal rigidity?
- Prick's sign I positive (red ears, pale cheeks)?
- Prick's sign II positive (pain upon pressure in the direction of the stylo-mastoid process)?

Normal findings at these examinations would seem to warrant the conclusion „no neurological changes”.

We had found answers to many questions; the initial question of a definition of concussion of the brain had meanwhile proved to be of no relevance to our actions.

Treatment

Concussion of the brain is a typical condition for general practice, and requires no referral.

We agreed on the duration of bedrest: brief (a few days), with ambulation guided by the complaints. It seemed wise to bear in mind that most patients feel worst between the sixth and the twelfth hour after the accident. Most of them no longer have any complaints after the third day and, next to the presence of the obligate characteristics, this clinches the diagnosis of concussion of the brain. It is pleasant for the patient to have his bedrest in a quiet environment.

We considered it unnecessary to impose restrictions, and most of us make no appointment for a repeat-visit. We did agree that it is advisable to have the patient contact us if complaints persist beyond the third day, in order to prevent fixation on the syndrome and on the basis of the knowledge that the total duration of illness is as much longer as the patient is later in indicating improvement.

We reached no agreement on the suggestion – particularly with regard to children – to wake the patient regularly during the first twelve hours after the accident in order to eliminate more serious conditions. One of the participants as a rule advised the parents to wake their child at night for a „pee” and a drink of water. He tacitly assumed that he would be alerted if anything untoward happened, and in this way he did not have to impose on the parents the stress of watching their child for developments which rarely occur.

We also differed about the use of symptomatic pharmacotherapy. A few of us urged a more uniform policy, but most of us were reluctant to accept this.

Conclusion

We spent eighteen hours discussing this subject. It seems a lot, but we realize that we needed time to become accustomed to each other and to a new method of learning: learning from gaps in one's knowledge. We have noted that

knowledge thus enhanced has led directly to changes in our behavior in relation to the syndrome in question; our actions were based on firmer convictions. One of the older participants said about this: „You think like a general practitioner, and you do not feel like a student being educated by specialists”. The meetings were characterized by hard work in a relaxed, informal atmosphere. Two members of the group ceased attending, but the others went on.

Summary. This paper reports on the way in which a group of general practitioners accounted for and revised their views on and actions in relation to concussion of the brain in the course of a number of meetings.

Samenvatting. Gebogen over commotio cerebri. Een bericht over de wijze waarop een groep huisartsen tijdens enkele bijeenkomsten hun inzichten en hun handelen ten aanzien van commotio cerebri hebben verantwoord en herzien.

Biemond, A. Hersenziekten, diagnostiek en therapie. *Bohn, Haarlem*, 1961.

Hooft, F. van 't. Commotio cerebri en andere gevolgen van schedeltraumata. Ziekteverloop en prognosis. *Thesis Utrecht*, 1973.

Participants of these meetings were: Cees Buiks, Guus Klein Horsman, Wim Ligtenberg, Eloy van de Lisdonk, Evert Manuels, Paul Mommers, Dick Nadorp, Hans Nolet, Ed Nijsten, Marianne Prick, Kees Scheffers, Reinier Somford.

Nota bene

The word „remedies” implies a delusive claim: these biologically active compounds rarely (if ever) „remedy” anything, although people sometimes die unless they are used. (Proposition in: A. M. J. Schoonen. Mass transport across fluid/fluid interfaces, release and absorption of drugs from non-pillar dosage forms. *Doctoral thesis Groningen*, 1980.)

From practice

An adolescent with idiopathic headache

*Can man live without a wisdom tooth?
Man can, but an oral surgeon cannot.
W. A. M. van der Kwast*

Headache – one of the most common symptoms in general practice – indicates serious illness in a small number of cases (in one out of sixty-five patients according to *Hodgkin*). The other patients with headaches confront the general practitioner with a problem and necessitate a search for the cause of the complaint – or symptom – which may literally range from „top to bottom”. In such cases the main „problem” is the time required for a detailed history and examination.

DR K. GILL

This was one of the motives that prompted the Alphen aan den Rijn study group of the Netherlands Association of General Practitioners to devise and publish a plan of investigation for headache. This headache protocol was based on a detailed study of all patients with headaches who in the course of two years presented in the surgery in seven general practices. The purpose of the study was to find a way out of the sea of troubles that can so easily engulf the general practitioner. In such cases a methodical approach – that is to say: a phased history, systematic examination and subsequently if necessary a phased care strategy – can be very helpful.

Possible causes of headache include vascular dysfunction, prolonged muscle spasms, traction on intracranial tissues and lesions of the eyes, ears, nasopharyngeal area, teeth and cervical region, and neuritis or neuralgia involving the cranial nerves. Other possibilities to be taken into account are tensions, intoxication, hypertension, metabolic disorders, cerebral arteriosclerosis, as well as posttraumatic and functional headache.

Oliemans calculated that the number of consultations per condition averages about 2.5. For headache as „symptom” he calculated an annual number of 19.9 consultations; in this respect it is to be