OCULAR PROBLEMS IN EARLY STAGES OF MULTIPLE SCLEROSIS

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SUMMARY

Purpose: In its early course, multiple sclerosis (MS) manifests in a variety of symptoms so that ophthalmologists should know that the ocular problems are often the first sign of the disease and may predict additional demyelinating events.
Method: The author have reviewed the data in the recent literature about the ocular problems in the early stages of MS.
Results: The initial signs of MS are: optic neuritis (acute, unilateral), blurred vision, diplopia or oscillopsia (illusory visual motion) due to oculomotor disorder, chronic bilateral uveitis, facial palsy (similar to an idiopathic Bell's palsy), paresthesias, numbness or/and pain in one or more areas innervated by the ramifications of the trigeminal nerve.
Conclusion: Ophthalmologists should be aware that these symptoms are suggestive of a demyelinating disease of the central nervous system.

RESUME

Objectif: Les toutes premières manifestations cliniques de la sclérose en plaques sont multiples. Les ophtalmologues doivent pouvoir en appréhender les premiers symptômes, d'autant que ceux-ci sont fréquemment annonciateurs de nouvelles poussées évolutives de la maladie.
Méthode: Ce travail est basé sur une recherche des données récentes de la littérature ayant trait aux relations qui ont été décrites entre certaines affections et symptômes ophtalmologiques et les signes précurseurs de la sclérose en plaques.
Résultats: Les signes d'appel dans les stades précoces sont souvent représentés par une névrite optique aiguë, une vision trouble, une diplopie ou une oscillopsie liées à un déficit oculomoteur, une uvéite chronique bilatérale, une parésie faciale (identique à la parésie de Bell), des paresthésies, de l'onglée et/ou des douleurs dans les territoires innervés par les ramifications du nerf trijumeau.
Conclusion: Les ophtalmologues doivent connaître et pouvoir appréhender les symptômes suggestifs d'une sclérose en plaques.

SAMENVATTING

Doel Multiple sclerose manifesteert zichzelf in den beginne door een waaier van symptomen, ondermeer oogklachten. Van oogartsen wordt verwacht te weten welke oogklachten het eerste teken kunnen zijn van multiple sclerose.
Methoden: De auteur zocht in de literatuur naar gegevens over multiple sclerose en zijn vroege symptomen.
Resultaten: De vroege symptomen van multiple sclerose zijn: acute eenzijdige oogzenuwontsteking, wazig zien of dubbel zien door een gestoorde oogspierbalans, chronische tweezijdige uveitis, aangezichtsspierverlamming, gevoelstoornissen in het gebied bestreken door de vijfde hoofd zenuw.
Besluit: Oogartsen moeten weten welke oogklachten het eerste teken kunnen zijn van multiple sclerose.

KEYWORDS

Ocular symptoms, signs, early multiple sclerosis

MOTS-CLÉS

Signes et symptômes oculaires, sclérose en plaques au stade précoce.

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Multiple sclerosis (MS) is one of the most frequently neurological diseases encountered in young adults, and ocular problems are common during the course of this disease [1].

MS represents a chronic disease that causes inflammation in the white and the grey matter of the central nervous system and ultimately destroys myelin, which is the protective sheathing that insulates and protects the nerve cell fibers in the brain, the optic nerve, and the spinal cord [2]. This inflammation consisting in a perivascular infiltration of monocytes and lymphocytes, results in multiple areas of scarring (sclerosis). Ocular problems are common during the whole course of MS and even more in its early stages.

MS is a clinical diagnosis based on two episodes involving two or more areas of the central nervous system over time and objective clinical evidence of two or more lesions in separate locations within the myelinated regions of the central nervous system [3].

The diagnostic criteria for MS have changed over time to include magnetic resonance imaging (MRI) of the brain. MRI findings are an integral part of the diagnosis and may detect other causes of ocular problems which mimic MS.

It is beyond the scope of this paper to discuss how MRI has been integrated over the last ten years into the diagnosis of MS. The reader can refer to the recent reviews such as those published by Rovira and Leon in the European Journal of Radiology [4].

MRI can provide evidence for dissemination both in space and time. New criteria allow a reliable diagnosis of MS to be made during the year of onset of a typical clinically isolated syndrome suggestive of MS. That is why an MRI is necessary when patients present themselves to an ophthalmologist with an ocular problem such as seen in early stages of MS [5,6]. Furthermore in some cases, MRI findings may predict the risk for MS.

Ocular problems in the early stages of MS are represented by optic neuritis, disturbances of the oculomotor balance, bilateral chronic uveitis, facial palsy and sensitive disturbances in the trigeminal area (pain or hypoesthesia).

There is little doubt that MS is the most common cause of **acute optic neuritis.** In a third of cases, optic neuritis due to MS attacks the head of the optic nerve (with disc swelling), and in two thirds of cases it attacks the retrobulbar part of the optic nerve (with normal optic disc) [6,7]. The frequency of patients with a first attack of acute retrobulbar optic neuritis who will have subsequent MS has been reported to be about 20% [8,9].

Imaging examination of the brain is not the lonely criteria that defines the prognosis of an attack of optic neuritis; the age and the gender of the patient must also be considered. A young healthy woman aged between 20 and 40 years who develops a unilateral acute optic neuritis, particularly of the retrobulbar type, has a higher risk of developing MS [10].

Patients with MS and **motor disturbances** at onset are usually older than 40 years [11]. The main symptoms of extraocular palsies and oculomotor defects are blurred vision, oscillopsia and diplopia, although many patients are asymptomatic. The frequency of diplopia in early MS has been reported as ±7% [12].

Oculomotor defects in early MS include dysfunction of individual nerves innervating the extraocular muscles, internuclear ophthalmoplegia, nystagmus, facial myokymia and opsoclonus [10,13,14-16].

Ocular palsies due to demyelination can be nuclear, supranuclear, internuclear or infranuclear in origin [16]. The dysfunction of individual nerves innervating the extraocular muscles mostly affects the VI th nerve and sometimes the IIIth nerve. Bilateral internuclear ophthalmoplegia is almost pathognomical for MS [17].

Nystagmus developed in the early stages of MS is most often horizontal and often lasting, although various types of nystagmus are possible [10,17].

Multiple sclerosis-associated uveitis may precede neurological deficits for many years [18,19].

The association between uveitis and MS has been acknowledged for several reasons. There is an increasing amount of evidence of an association between uveitis and various central nervous system diseases including MS [20,21]. The reported frequency of uveitis in clinical MS

varies between 2.4 and 3.5% [18]. Additionally, multiple sclerosis-associated uveitis comprises more than 1% of all cases of uveitis [18]. Patients with multiple sclerosis-associated uveitis are commonly young females. The uveitis is chronic, of the granulomatous type, bilateral and located in the anterior and/or intermediate regions of the eye. The characteristics of intermediate uveitis include retinal periphlebitis, retinal haemorrhages, retinal neovascularisation, vitritis and cystoid macular oedema [22]. Sometimes, vascular changes in the far periphery of the retina are found when patients present with visual symptoms arising from acute optic neuritis [23]. Patients with MS should be examined by an ophthalmologist to check for insidious forms of uveitis and to treat the uveitis when present.

The frequency of **facial palsy** in early MS has been reported as ±3% and the age of onset is usually about 27 years. The clinical findings of facial palsy in early MS are similar to the clinical findings of the idiopathic Bell's palsy. Total loss of function of the facial expression muscles is rare [1,10,24-28].

The most frequent initial symptom of MS is acute or subacute onset of **numbness or tingling** in one or more distal parts of the limbs. **Paresthesias**, **numbness**, **anaesthesia and/or pain** (trigeminal neuralgia) in one or more areas innervated by the ramifications of the trigeminal nerve can be initial signs of MS. These symptoms may disappear after a few days or weeks [10,24,29].

CONCLUSION

It has become clear that the relationship between chronic bilateral uveitis and MS can no longer be denied. Thus the frequency of the ocular problems in the early stages of MS is higher than previously thought.

The management of patients with any of the above mentioned problems is based on the search for the conditions that cause inflammation of the cranial nerves. Diagnostic work-up of such patients includes a neurological examination. The neurologist will perform a clinical exam, routine blood tests, a lumbar puncture for cerebrospinal fluid analysis, visual-evoked potentials and brain MRI as explained above. In well selected cases, neurologists may use the information of the ophthalmologist, the outcome of the clinical exam and the proofs of demyelination by MRI to start early treatment in order to decrease the burden of the disease and to delay its progression [2]. Ophthalmologists should be aware of the different possible symptoms that can be suggestive of the early stages of MS, the most frequent demyelinating disease of the central nervous system.

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