TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some diseases of the nervous system met with in general practice

THE TREATMENT OF MIGRAINE

BY

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It is not easy to foretell whether or not a migrainous subject will react favourably to treatment. Considerable variability occurs in the susceptibility of the patient to the therapeutic agencies at present at our command. Neither the severity of the attacks themselves nor their frequency determines the response to treatment, and comparatively mild cases may actually prove the most intractable.

When it is recalled that migraine is usually an inherited constitutional affection, the difficulties in treatment are at once realized. Moreover, I am of opinion that there is, strictly speaking, no such entity as migraine proper; rather should we think of migrainous subjects who are victims of periodic headaches as the result of a variety of precipitating factors, whether psychological, endocrine, allergic, ocular, gastro-intestinal, or hepatic. In some cases a particular precipitating cause seems to be specific, whilst in others more than one factor may be effective on different occasions. It follows, therefore, that the rational approach to the study of a migrainous subject will comprise, first, a thorough investigation into the nature of the precipitating factors, bearing in mind the fact that attacks of migraine may be entirely symptomatic and indicative of gross disorder in regions such as the cranium or gall-bladder.

Preliminary Investigations

First among the investigations will be a careful examination of the eyes for errors of refraction and of muscle balance. I believe that a complete correction of such defects will be necessary, and failure to carry out this preliminary step will jeopardize the success of the other forms of treatment. Many ophthalmic surgeons consider that the glasses prescribed should be worn constantly, and not be reserved for close work only. A certain advantage is to be gained in the use of lightly tinted lenses.

Besides a complete routine neurological examination it is necessary always to auscultate the skull with a stethoscope. The importance of this lies in the fact that a rare but well-established cause of migrainous attacks is found in blood-vessel tumours of the brain, including both the so-called "congenital" aneurysms and the rarer cerebral angiomas. In the latter case a skiagram of the skull usually proves diagnostic. Cases of "biliary" or "hepatic" migraine require special study of the functional integrity of the gall-bladder, and skiagrams, duodenal intubation, and blood examination may be necessary. Allergic cases demand the special tests for skin sensitivity in order that the offending protein may be demonstrated.

When all the available data as to aetiology are to hand, treatment may be instituted upon an approximately scientific basis. For convenience one may consider therapy under three main heads: (1) prevention of attacks (a) by non-specific means, (b) by specific therapy, and (c) by surgical measures; (2) treatment of a threatening attack; and (3) treatment of a fully developed attack.

Prevention of Attacks

Non-specific Measures.—In practice, non-specific therapy usually proves to be not only of the greatest all-round utility, but also the most effective. For even when the precipitating factors are determined they may be incapable of removal. Luminal (pheno-barbital; gardenal) is almost certainly the most useful drug in the treatment of all types of migraine. It may be prescribed in doses of 1 grain at bedtime or 1/2 grain night and morning. In less tractable cases the dosage may be increased gradually to 1 grain twice or even three times daily. Most neurologists will affirm that no untoward bodily or mental effects accrue from the regular and prolonged employment of luminal in these doses. Unfortunately, while considerably improving the majority of patients, luminal does not suit everyone. Such patients usually prove to be very resistant to other forms of medication, and may be the despair of their doctors and of their relatives. In such cases it is worth while trying prominal (Bayer), 2 to 3 grains at night time, or superminal (Minerva Apotheke) 1/2 to 1 tablet at night, though the value of these preparations in the treatment of migraine is not yet established.

Thyroid extract is often useful, even though obvious endocrine factors are not at work. It is necessary to employ very small doses, and 1/10 grain of the ext. thyroid. siccum (*B.P.* 1933) should be prescribed thrice daily. Nitroglycerin and its derivatives were advocated by the older physicians, and are now largely replaced by the barbiturates. One may order tabellae of nitroglycerin in doses of 1/200 to 1/100 grain two or three times a day. Liquor trinitrini is a constituent of the well-known prescription used by Sir William Gowers in the treatment of migraine:

R	Liq. trinitrini	...	...	...	...	m j
	Liq. strych.	...	...	...	...	m v
	Sod. bromid.	...	...	...	...	gr. x
	Ac. hydrochor. dil.	...	...	...	...	m x
	Tr. gelsem.	...	...	...	...	m v
	Aq. chlorof.	...	...	...	...	ad 3 ss

3 ss t.d.s., p.c.

Ergotamine tartrate has lately become popular in cases of migraine. While it is usually employed for the relief of an attack itself, there is some evidence that it may also prove of value when administered regularly. One must bear in mind, however, the possible danger of producing ergotism. The drug, which is sold in this country under the trade name of femergen (Sandoz), may be prescribed in the form of tablets, each of 1 mg., once, twice, or three times daily.

Specific Therapy.—This is indicated where the aetiological factors are obvious. In allergic migraine the best results are obtained from the removal of the responsible protein factor. Less favourable results are obtained from attempts at desensitization. For this purpose hypodermic injections of a 50 per cent. aqueous solution of peptone may be given on alternate days. The initial dose is 1 minim, and each dose is increased by a minim up to 3 minims; doses of 3 minims should then be continued for twenty days. A combination of large doses of calcium and of viosterol is also worth a trial. The following prescription may be noted:

R	Calc. chlorid. (anhydrous)	...	...	50 grams
	Aq. destill.	...	...	ad 500 c.cm.
	3 j thrice or four times daily, p.c., ex aqua			

For biliary migraine one may either administer bile salts or else institute biliary drainage. In the former case capsules of sodium glycocholate, 3 to 20 grains, may be prescribed three times daily. T. C. Hunt recommends the larger doses unless unpleasant side-effects occur, such as vomiting. The proprietary preparation decholin (Riedel) may be ordered, the dosage being one or two tablets thrice daily. J. Geoghegan suggests two methods of biliary drainage. In milder cases a little Karlsbad salts regularly every morning, followed by a copious amount of warm water or hot tea, will suffice. For severe cases duodenal intubation will be necessary twice weekly, using a 30 per cent. solution of magnesium sulphate. Cases of menstrual migraine may be treated with ovarian or placental extracts. Thus one may prescribe any of the following:

1. Theelin: 1 c.cm. (50 rat units) injected on alternate days during the week prior to the onset of menstruation.
2. Emmenin complex (Glaxo): one to two ounces orally twice daily, except during the menstrual period.
3. Menformon (Organon): 1 c.cm. injected twice weekly.

Other endocrine types of migraine are treated by thyroid extract (as already mentioned) or by pituitrin injections, 1/2 c.cm. weekly.

Surgical Treatment.—This is very occasionally necessary, not only in the cases of "symptomatic" migraine associated with vascular tumours of the brain, but also in some intractable "idiopathic" cases. Among the various operative procedures that have been advocated two deserve mention as being based upon a more or less plausible foundation. In the first place there is Dandy's operation of removal of the stellate ganglion, and secondly Dickerson's suggestion of ligating the middle meningeal artery, with resection of a small portion of the vessel. The clinical indication for serious consideration of surgical intervention is as follows: severe cases of migraine in which the headache is always strictly unilateral and localized to the same area of the skull, and which have failed to respond to a thorough medicinal regime.

Treatment of a Threatening Attack

Sometimes it is possible to cut short an impending attack provided that measures can be promptly instituted. Thus it is not rare for the victim to wake in the morning either too early or too late, with a feeling of discomfort or dull headache which merges later into an intense hemicrania. In such cases the patient should remain in bed for an extra hour or two, and take at once a draught containing bromide, aspirin, or caffeine, singly or combined. Any of the following are of service:

Tab. tri-bromid. effervesc. (B.W. and Co.), one tablet dissolved in a tumbler of water.

Tab. empirin co., two to three (aspirin 3½ grains, phenacetin 2½ grains, and caffeine ½ grain).

The action of analgesics is enhanced by caffeine, whether taken as such or in the form of a cup of strong tea, coffee, or maté. In other cases a saline aperient is sufficient to abort an attack of migraine. Some medical men have advocated preparations of calcium at this stage, and one may try calcium lactate 30 to 40 grains, or kalzana (Wulfging) three to four tablets.

Treatment of the Attack

When the attack is severe the patient goes to bed and tries to secure sleep. He will shun not only all noise and bright light, but also food and drink, and in particular the administrations of solicitous relatives. There are a large number of excellent analgesic preparations available, but, unfortunately, tolerance is quickly attained. Benefit results, therefore, from a change of medicament. Any of

the following may be tried: veganin (Warner); neurettes (Evans Lescher and Webb); compral (Bayer); antikamnia compound; dialacatin (Ciba); veramon (Schering). Various combinations of aspirin, phenacetin, pyramidon, and bromide may be prescribed. The following is at times useful:

Rx	Pot. brom.	...	...	...	gr. xxx
	Chloral. hydrat.	...	...	...	gr. xv
	Aspirin	...	...	...	gr. xx
	Mucil. tragacanth.	...	...	...	gr. v
	Aq. chlorof.	...	...	...	ad 3 j

Preparations containing pyramidon should not be prescribed over long periods or for frequent use, owing to the possibility of untoward action upon the leucocytes. Injections of adrenaline (5 minims) have lately been recommended for the relief of an acute attack. The efficacy of this drug is apparently very inconstant, but at times the results are most satisfactory. Among the more recent and promising forms of treatment is the intramuscular injection of ergotamine tartrate (femergen) 0.5 c.cm. The benefit as to headache is frequently almost dramatic, although unpleasant concomitants such as vomiting or uterine colic may arise. Usually, however, the effect is to bring promptly to a close an attack of migraine which would otherwise disable the patient for hours or even days. In very intense cases the intravenous route has been recommended. It is perhaps advisable that when ergotamine tartrate is being employed for the first time half the usual dose should be given. Another promising measure which has recently been employed at the National Hospital consists in the intravenous injection of sodium luminal, 3 grains dissolved in 12 c.cm. of water.

Psychotherapy

Nothing has been said so far as to the psychological aspect of migraine and its treatment by psychotherapy. Unquestionably in a number of cases psychological stress plays a highly significant part, and there is often an emotional background which is fairly characteristic. Moreover, there is a tendency for the attacks of hemicrania to be precipitated in some subjects by purely psychological factors. Such cases may improve considerably under expert psychological treatment, though it is perhaps questionable whether drug therapy can or need be entirely superseded thereby.

Chronic Ill-health in Migrainous Subjects

Victims of severe migraine, where the attacks are both frequent and prolonged, are liable to develop a condition of great debility causing almost total incapacity. The victim, usually a woman, becomes intensely fatigued and depressed, sleeps and eats badly, and loses weight. Her features become pale and haggard, and a persistent hypotension is demonstrable.

Treatment in such cases is often extremely difficult. Among drugs there is a place for tonics of the strychnine class, as well as for ephedrine sulphate 1/4 grain twice or thrice daily. The appetite must be stimulated with stomachics or with alcohol, and the patient's fluid intake be increased. Graduated physical exercise, particularly walking, should be encouraged, though frequently in the face of considerable opposition on the patient's part. Massage, hydrotherapy, and electrical treatment may also be of service here. Such patients have frequently fallen into bad habits of inadequate meals, late hours, excessive smoking, and aspirin addiction, all of which will require tactful correction. A holiday, or even prolonged residence at a bracing resort, is valuable, care being taken to avoid "enervating" or "relaxing" areas. In the most intractable cases, indeed, it is doubtful whether anything

less than a protracted sanatorium life will be effective, with abundant rest and rich, regular food, regulated hours of exercise, and medical supervision. The ideal is achieved at the sanatoria for tuberculosis, but good results may also accrue at a hydro or a spa. At the last-named advantage may be taken of colonic irrigations and balneotherapy to correct hepatic dysfunction. For this purpose the spas of Harrogate and Llandrindod Wells in this country, Wiesbaden and Baden-Baden in Germany, and Vichy in France are particularly suitable.

MOTOR CARS FOR 1936

THE OLYMPIA SHOW

[FROM OUR MOTORING CORRESPONDENT]

The twenty-ninth Annual Motor Show, organized by the Society of Motor Manufacturers and Traders, which opened its doors on Thursday, October 17th, and closes to-day (October 26th), may probably be the last to be held in the famous Olympia halls in Kensington, as it was announced a little time ago that the exhibition is to be transferred to the reconstructed buildings at Earl's Court, which in the pre-war days were a very popular exhibition centre.

This year's Show, notwithstanding a slight reduction in the number of exhibitors, is well up to standard, for besides those in the motor bodywork section, just over fifty different makers of cars are represented, of which approximately thirty are British, while on twenty stands are to be seen the latest productions of American, Canadian, French, German, and Italian makers. No doubt foreign firms continue to display their cars at Olympia because the British Show is now regarded as having the biggest international attraction. So far as the Home Country is concerned, it is only a small market for foreign cars, the latest registration figures of motor vehicles in Great Britain showing that fully 94 per cent. of them are British.

The Trend of Design

Passing to a general review of the cars of 1936, and dealing first with prices, it will be found that while slight advances have been made in a few cases, on the whole they remain about the same as last year, despite the "better value for money" they represent by reason of numerous detail improvements and added conveniences. For those who are interested in the technical details of cars it may be stated that in the popular price range the four-cylinder engine continues to hold its own with the six-cylinder power unit, although the latter type is now almost exclusively used on cars of over 12-h.p. The modern petrol engine, whether with four or six cylinders, has reached a point, as regards both efficiency and reliability, which would seem to leave but little room for further improvement. At the same time, while the basic design remains unchanged, power units are much "cleaner" in appearance than those of even only two years ago. Much attention has also been paid to the material used for the construction of the various parts to ensure long life and silent running. The battery-coil system of ignition is more widely used than ever, while the fitting of a magneto has declined during the past five years from 15 to about 8 per cent. of the exhibits.

Higher Average Horse-power

As the Prince of Wales pointed out in his opening address, one effect of the reduced annual car tax has been an increase in the average horse-power of British cars, this being now about 19-h.p. as against only 15-h.p. a year ago, a change which he regarded as favourable to an increased export trade, higher power being more in demand overseas than in this country. Although there is an increasing trade in vehicles of relatively high horse-power, the main goal in Great Britain is, however, for cars

up to 12-h.p., and especially those of 8-h.p. and 10 h.p. At the same time there is a big display of cars from 12-h.p. to 24-h.p., while there are some notable additions to the list of cars of even higher power, among them being a Daimler 25.7-h.p. "straight eight" and a 50.7-h.p. Rolls-Royce with a twelve-cylinder engine arranged in V fashion. Another feature of the new season's models is the appearance of two cars fitted with eight-cylinder V-type engines—namely, an 18-h.p. Riley and a 22-h.p. Ford. The latter is, so far as the engine is concerned, a smaller edition of the same company's 30-h.p. model, and has been introduced to meet the demand for a vehicle possessing the same features but subject both to a lower annual tax and to reduced running expenses. While on the subject of engines reference may be made to another interesting departure provided by the Jowett Company. This concern has for years confined its attention to cars fitted with a horizontal two-cylinder engine, but has now added a 10-h.p. car with a four-cylinder power unit, the horizontal cylinders being arranged in pairs on each side of the central crankshaft.

In two or three instances manufacturers have adopted the plan of offering buyers the option of two sizes of engine for the same chassis. Thus the Morris "Ten" can be supplied with a 12-h.p. engine at an extra cost of about £5, while the same makers' six-cylinder cars can for the same price have in the one case either a 16-h.p. or 18-h.p. engine, or in the other either a 21-h.p. or 25-h.p. power unit. Similarly, buyers of the Vauxhall "Big Six" may choose either a 20-h.p. or 27-h.p. engine, both being listed at the same price.

Change-speed Gears

As regards change-speed mechanism, whether it is due to the greater efficiency of the modern petrol engine or not, it is noteworthy that during the past two years there has been a marked tendency to provide cars with only three forward speeds; for although four-speed gearboxes are still in the majority their proportion to the total has fallen from 73 per cent. in 1934 to 69 per cent. now, those with only three speeds having during the same period increased from 21 to over 30 per cent., the balance in both years representing miscellaneous types of change-speed gearing. In both three- and four-speed gearboxes the gears are now, in nearly all cases, of what is known as the synchromesh variety, the advantage of which is the quiet and easy way in which gear changes can be made. The B.S.A., Daimler, and Lanchester are still the only cars with fluid flywheel transmission and preselective gear changing. The Armstrong-Siddeley Company, for the eighth year in succession, is pinning its faith to its self-changing gear, which is also available either as standard or as an extra on certain other makes of cars. This also applies to the Hayes gear on some of the Austin models, and to the de Normanville gear arrangement sponsored by the Humber Company. A somewhat new idea is found on some of the Continental cars—that of mounting the change-speed and emergency brake levers on the dash. Those who have had experience with them report that they present no serious difficulty of operation, and provide the added advantage of freedom from projecting levers in the footboards.

Standardizing Car Controls

Although the day is a long way off when cars will be all made to a series of standard patterns and sizes, there is one direction in which more uniformity in design has been achieved—namely, in the arrangement of the clutch, brake, and accelerator pedals. Up to a year or so ago there were many cars in which the accelerator pedal was centrally located between the other two. Now, as the result of the standardization efforts of the Society of Motor Manufacturers and the Institution of Automobile Engineers, the generally accepted plan is to locate the accelerator pedal to the right of that operating the brakes. A similar trend to greater uniformity is also taking place in respect to the change-speed lever positions with four-