Current Practice

JOINTS AND THEIR DISEASES

Management of Rheumatoid Arthritis

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Rheumatoid arthritis affects at least 1% of all males and 3% of all females, the incidence rising with increasing age. In mild cases little disability results, but in more severe cases a progressive destruction of joints, tendons, and other tissues is associated with a systemic illness and constitutional symptoms, of fluctuating and very variable degree, eventually leading to deformed and crippled limbs when the inflammation has subsided. Since there is no definitive treatment the object of management is to reduce the rate of tissue destruction and maintain function until the disease becomes quiescent, while at the same time enabling the patient to lead a full life. The way of achieving this will vary between different patients and practitioners.

The nature of the illness and aims of treatment must be clearly understood by doctor, patient, and family from the onset.¹ Assessment of the patient's needs and attitude to his disease and a thorough discussion of the problems at an early stage will be well repaid later. This can be aided by reference to literature (Appendix I). It is here that the patient's family doctor should play a major role, and indeed most patients with rheumatoid arthritis are cared for by their own general practitioner. For mild cases this is very satisfactory; however, for patients with more severe disease or deformities the resources of a hospital are needed, and it is much better to use these early rather than too late, when irreversible damage has occurred. Since rheumatoid arthritis tends to attack people in early middle life, the wage earner and wife with young family are affected at their most vulnerable period. The resulting inability of one partner to pull his or her weight can lead to family friction, while attempts to overcome unequal competition in the outside world may lead to much emotional distress.

The child with rheumatoid disease (Still's disease) presents a rather different problem. The illness is usually prolonged, often with severe constitutional disturbances, but there is little pain. Defects in local and general growth may occur—in part due to the use of corticosteroids. The co-operation of the parents throughout the illness improves the eventual outcome, but undue sheltering of the child should be discouraged, and he should lead as normal a life as possible.

Psoriatic arthropathy can closely simulate rheumatoid arthritis, but it runs a milder course, seldom resulting in severe disability. The lines of treatment are much the same as for rheumatoid arthritis, but it is unusual for gold or immunosuppressive therapy to be necessary, and antimalarials may cause exfoliative dermatitis.²

The following discussion of general management will deal mainly with the arthritis and only touch on the systemic aspects (for which see Hart³). Drug therapy will be briefly discussed separately.

Clinical Course

The clinical course is unpredictable. Initially a single joint may be affected, but commonly the onset is a fairly symmetrical involvement of small or large joints. The onset is usually

insidious; the joints may then be permanently damaged before the patient receives adequate treatment. In 20-25% of cases the onset is acute, with severe inflammation and constitutional symptoms leading to early referral to hospital. The disease either progresses steadily or regresses, but it is always apt to undergo exacerbations, which may be frequent or delayed for many years.

In the acute stage the main problems are pain, constitutional symptoms, especially fatigue, and in some cases depression. During this period treatment will produce the highest therapeutic returns, and much potential disability may be prevented. If inflammation persists, joint destruction and permanent deformities appear, with which the patient may be able to cope until advancing age, unstable or fixed joints, an incidental illness, or ill advised and prolonged bed-rest following operation prove too much of a handicap and he retires to a bed or chair existence. In the later stages pain is often not due so much to inflammation as to deformity and mechanical disability. Progression of joint destruction is variable, depending on the degree of inflammation, the joints affected, the amount of use they are put to, and the treatment they receive.

General Management

We can divide the clinical course into two stages, acute and chronic. Patients with mild arthritis can be adequately treated by analgesics and anti-inflammatory drugs, perhaps with the addition of local treatment such as corticosteroid injections, supports, or splints.

Acute Severe Local or General Arthritis

The most rapid response is obtained by resting the joints affected. A single joint may be rested by splinting and if necessary injected with a corticosteroid. More extensive arthritis requires bed rest. This should be complete, the only relaxation being for toilet purposes. Marked improvement is usually found by the end of the first week. Failure to respond may be due to too much activity; patients tend to get up and do minor tasks without realizing that this quickly nullifies the benefit of rest. The provision of domestic help is both economically and medically justifiable.

Admission to hospital with stricter supervision may produce improvement where home treatment has failed and should be considered for any patient not responding to a week's rest at home. To enforce immobilization, splints may be applied, especially to the knees, ankles, and wrists. These can be used later to straighten the joints or protect a persistently "active" joint during general mobilization. Residual contractures are not found after short term splinting.⁴ The objection that muscle wasting will be increased and retard subsequent re-

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habilitation is more than counteracted by the ability to start active physiotherapy earlier. Attention to posture in bed should ensure a firm bed with boards beneath the mattress and a single pillow, the blankets not tightly drawn, and a bed cage used with no pillow or cushion behind the knees. Initially adequate analgesics and sedation should be given to allow the patient to rest and relax his painful joints.

Often the mistake is made of trying to temporize at the onset of the illness by giving anti-inflammatory drugs and analgesics in an attempt to avoid a period of immobilization and allow the patient to continue at work, in the hope that the inflammation will abate. This usually results in a more prolonged initial illness. Adequate and aggressive early treatment is essential.

With the regression of inflammation mobilization can be started by static exercises—muscle tensing without joint movement. This is associated with passive joint movements to maintain the full range. Later, graduated active exercises are necessary to build up muscle power. This stage cannot be hurried, overwork may lead to a return of inflammation, muscle power returns slowly, and until strength is adequate joint function and—more important—stability are poor. For this reason if marked weakness has developed the early ambulation should be assisted, and the patient gradually weaned by using walking-aids. Elderly patients are additionally handicapped by loss of balance and resultant loss of confidence.

In Still's disease a more active programme should be pursued in an endeavour to keep the children mobile and prevent deformities. This is helped by the relative absence of pain.

Physiotherapists and occupational therapists play a large part in management at all stages of treatment. The restoration and maintenance of function are largely dependent on their close co-operation. Correction of contractures, strengthening of muscles, increase in limb function, provision of splints, and instruction in the use of gadgets all fall within their scope. Gone are the days when heat and massage were their sole contributions.

Chronic Stage

In the mild case or in the post-acute stage of the illness the emphasis changes. Now functional activity is the aim: the patient should undertake as much as possible without exacerbating the inflammation. Patients should be encouraged to be as active as possible; exercises learnt must be conscientiously performed. If splints are worn they must be regularly inspected to ensure they fit properly. Following on from this, as the pattern of the illness becomes apparent, arrangements can be made where necessary to support the patient in maintaining independence domestically, socially, and economically. Care is necessary here to avoid over-protecting the patient. Long term follow-up of all but the mildest cases is necessary to detect and correct new deformities as they appear.

Domestic Arrangements

This part of the programme is perhaps the worst organized, though help can be obtained from many sources—the medical social worker, local authorities, Red Cross, St. John's Ambulance Brigade; the availability of these services varies from region to region.

The young housewife with several children is at a severe disadvantage getting the children off to school in the morning. Little can be done by outside bodies to help her in this, though domestic help may be obtained. A visit by medical social workers, physiotherapist, occupational therapist, and local authority staff can lead to installation of gadgets and appliances and suggestions for overcoming other problems. Actual structural changes such as a downstairs toilet and slopes instead of

steps between different floor levels can all make the patient's work easier. Rehousing may solve many problems, especially the use of ground floor flats. Shopping is often difficult, but arrangements can usually be made locally for orders to be accepted by telephone. In the case of the elderly, meal-on-wheels services are of great benefit. The recent tendency for families to disperse more means that fewer parents can depend on their children for help later in life.

Social Adaptation

Man is naturally gregarious, but to meet people requires mobility. The provision of the right type of transport, such as folding wheel chairs or electric cars, may resolve this; and vehicles can be provided, if suitable, by the nearest Ministry of Health Appliance Centre. Minor alterations can make normal cars usable by the partly crippled. If incapacity is great, and no relative can help, then there are usually local people or organizations who undertake to help invalids either by visiting or organizing social clubs (see appendix I). Many patients worry about seemingly small things such as finger or foot deformity resulting in unsightly hands or shoes; surgical correction of these is often possible.

Employment

A change of job may be advisable. Here the decision can be difficult, especially if the patient lives in an area of full employment and has had his job for a long time. A change of job usually leads to a fall in income and often status. Patients may be reluctant to accept this, and the resulting fight to try to maintain their position may lead to much unhappiness and deterioration in their arthritis. Job hunting is particularly difficult for the manual worker, who by the nature of things depends on his limb function and is untrained for sedentary jobs. Here we come to the problem of employment exchanges and retraining. Talking to patients it seems to me that employers are reluctant to take anybody on with the tag of "arthritis," and many patients prefer to go it alone and retain their independence. Certainly with the mildly affected arthritic this latter policy is usually more satisfying psychologically and economically to the patient. Rehabilitation courses meet with mixed success, and here it often appears that the patient has been put to work uncongenial to his ego. Disablement resettlement officers are available at all employment exchanges and can help with suitable employment.

Employment usually means travelling, and here again help is necessary. Even moderate walks to the bus stop are made worse when they have to be done slowly in the rain. Getting on and off buses and around the underground can be a nightmare. The provision of a motorized tricycle, for which the Ministry of Health will pay tax and other expenses, can overcome this but is not a great help in busy town traffic; an adapted car is more useful but it is a little more difficult to procure.

Children with mild disease can be managed at home and attend a normal school, avoiding the more strenuous games. This is the preferred treatment; in more severe cases, however, treatment in hospital is necessary and should be undertaken when possible in special units. These provide the necessary medical facilities and experience and allow the child's education to continue. Separation from the parents must be kept at a minimum by regular correspondence and visiting.

Long Term Care

In a slowly progressive disease deterioration is insidious and may be accepted as normal by both patient and doctor unless a regular check is kept of functional status. This is the value

of periodic follow-up. Attendance at too short an interval defeats this object, since the physician does not notice small changes. The fit of splints and footwear should be tested and early faults in posture such as an inability to straighten the knees looked for. The cause of pain may change—a typical example being in the toes, where the pain of metatarsophalangeal joint inflammation is replaced by painful callosities over the subluxing joints, which are very easily treated surgically. Many simple devices are available to help patients, and discussion during clinic attendances of the patients' physical problems is worth while. Ease of access to the clinic is important, so that while a fixed appointment should be given patients should be encouraged to come back earlier if complications occur.

During this period other diseases and complications may appear. The most malignant of these are amyloidosis of the kidneys (presenting with proteinuria) and a vasculitis, which may be widespread (presenting as a neuropathy, small ischaemic lesions of the fingers, or abdominal pain).

Pressure ulceration is a problem in the immobile arthritic, especially if the arthritis is longstanding, the patient is old, or he has been treated with corticosteroids. These ulcers occur at two main sites, the sacrum and buttocks, and over the heels. They can develop rapidly and with little pain. Prophylaxis is the best treatment, and if there is any hint of an ulcer developing the patient should immediately be referred to hospital. Good nursing with frequent change of position, avoidance of crumpled and folded sheets, and possibly the use of a water-bed to distribute weight⁵ usually allow healing, though this may take several weeks.

Patients who cannot manage at home or have no family may be suitable for part III accommodation provided for by the local authority. Here they can retain some independence but are not shut off from social contact. Follow-up of these patients must not stop, lest they slowly deteriorate and become more crippled.

Assessment

Successful treatment depends on accurate assessment of the disability (see appendix II), the patient's reaction to this, and his response to different forms of treatment. This is difficult, since each new treatment tends to bring temporary subjective benefit even if later it is found to be useless (placebo response). The length of morning stiffness (limbering-up time) is a useful index, and sometimes patients find they can do certain set tasks such as washing up, shopping, or walking a distance more quickly. However, the clinical findings are more helpful. Disappearance of effusions, increased range of joint movement, increased grip strength and reduced pain in pressure across the carpo-metacarpal, tarso-metatarsal, or proximal interphalangeal joints, all indicate reduction in the inflammation.

It is important to form an opinion of the effectiveness of the treatment for several reasons: firstly, to arrive at an optimum regimen; secondly, to avoid overprescribing because the patient exaggerates his symptoms; and, thirdly, to form one's own opinion of the usefulness of each drug or treatment schedule. A week is enough to assess the potential of most drugs in the treatment of any individual patient. The analgesic or anti-inflammatory properties will be apparent by then, but complications may occur at a later date. Physiotherapy may take a little longer to produce benefit, but by the end of a fortnight improvement should be occurring.

Drug Therapy

Drug therapy is an aid to treatment, never a treatment in itself. Complete reliance on drug therapy indicates suboptimal treatment, and not all patients require drug therapy. In this

disease drugs have four functions—analgesic, anti-inflammatory, sedative, and anti-depressant. One or more functions are performed by most drugs, and it is important to realize the expected effect of each drug; unfortunately there is a tendency not to distinguish between analgesic and anti-inflammatory actions. Mixture of drugs is common, and this not only confuses but leads to the use of undesirable drugs such as phenacetin or cortisone.

The prime aim is to reduce inflammation, though drugs are not usually capable of completely suppressing inflammation without producing excessive side-effects.

Analgesia is the second aim, though one should remember that pain is in itself a protective mechanism reducing misuse of the joint. Sedatives and antidepressant drugs may help in particular cases, but are not routinely used.

Selection of the best combination of drugs in any individual case is often a matter of trial and error, but a few guidelines can be given.

(1) The dose of each drug should be increased until no further significant improvement occurs or until side-effects appear. Notwithstanding this, excessive doses should not be given in an attempt to remove the last few remaining symptoms.

(2) Preference should be given to non-corticosteroid drugs, and at all times attempts should be made to reduce the dosage of corticosteroids. Many patients are given too high a dose with increased risk of side-effects. Local intrasynovial injections may be given without causing appreciable systemic effects.

(3) Correct administration helps. A large dose of drug last thing at night may prevent morning stiffness, and also minimize the side-effects. Taking tablets after food, using enteric-coated tablets or rectal suppositories, may reduce the gastric irritation. Rectal suppositories are particularly useful if large evening doses are being given to alleviate early-morning stiffness.

(4) The combination of several anti-inflammatory drugs is not recommended.

(5) Regular therapy with anti-inflammatory drugs is usually better than intermittent therapy, and patients should be firmly told that they will not become resistant to these drugs.

(6) Apart from chrysotherapy and immunosuppressive therapy, frequent tests of blood and urine are not necessary in monitoring drug treatment.

(7) Rapid withdrawal of anti-inflammatory drugs can lead to a severe exacerbation of the arthritis.

In practice aspirin remains the most useful basic drug either as sole treatment or as an adjunct to other drugs. It should be used in adequate dosage—at least 8 tablets per day, and is available in enteric-coated and compounded forms. Should dyspepsia, gastrointestinal bleeding, or sensitivity develop then paracetamol can be used, though it does not have any anti-inflammatory properties.

Inadequate response will lead to a trial of phenylbutazone (or oxyphenylbutazone) or indomethacin, either orally or as suppositories. Serious side-effects are relatively few, but phenylbutazone may cause blood dyscrasias, and psychological disturbances and headache occur with indomethacin. Dihydrocodeine and codeine, mefenamic acid and flufenamic acid, may be of use in individual patients. The antimalarials such as chloroquine have been shown by several trials to be effective in rheumatoid arthritis, but I have not been impressed with the results, and certainly careful watch has to be kept for side-effects, which are mainly ophthalmological.

At this stage if improvement has not occurred other possibilities must be considered.

Gold.—Chrysotherapy is now increasingly used, and, indeed, if response occurs it can be the most effective form of therapy. It is least effective in the chronic type of case with little activity. Many different regimens are employed, and no final schedule can be given until a method of monitoring therapy has been

evolved. A suitable one is 10 mg., 30 mg., and 50 mg. sodium aurothiomalate intramuscularly at weekly intervals followed by 50 mg. weekly. A full blood count and a urine test for proteinuria must be done each week. The course is continued until clinical improvement or a fall in the sedimentation rate occurs, when the injections are reduced to 50 mg. each fortnight or three weeks. Should toxicity (rash, stomatitis, altered blood count, or proteinuria) intervene the course is stopped; if the reaction is severe then British Anti-Lewisite (B.A.L.) can be given.

Corticosteroids.—These are the most powerful anti-inflammatory agents, but they are prescribed less frequently now because of the side-effects that appear later. The pendulum has probably swung too far; there is no doubt that in small doses, such as prednisone 5–7.5 mg. daily, they can transform a patient's life. The use of 1 mg. tablets of prednisone allows the dose to be accurately adjusted—an advantage not possible with the more powerful synthetic drugs. Intermittent local injection of corticosteroids is a useful form of treatment.

Cytotoxic therapy.—This is a relatively new field and the work still experimental. Azathioprine⁶ and cyclophosphamide⁷ have been studied and shown to suppress the disease and allow a reduction in the corticosteroid dosage. The mode of action is uncertain; suppression of the immune mechanisms may occur and a direct effect on the inflammatory reaction is also found. These drugs should be used only in combination with regular blood counts.

In all the latter forms of treatment the inclination is to reserve them for the late refractory case. This is probably wrong, since if benefit is to be obtained it is most likely in the early stages of the disease. Unfortunately it is difficult in the early stages to pick out the case with persistent resistant disease.

Surgery.—This is a rapidly expanding field, much of the work still being of an experimental nature. Trials of early synovectomy (i.e., before radiological change has occurred) of the knee and finger joints are in progress in many countries, and this is probably a worthwhile operation, but it is not a certain cure.

In the lower limb the general principle is to provide pain-free stable and mobile legs. If only one joint is affected fixation may be the answer, but in a disease always prone to affect new joints arthroplasty is more commonly performed to preserve movement. This gives excellent results at the hip but less certain, though worthwhile, results in the knees, where more experience is necessary. Arthrodesis of the ankle is occasionally indicated. However, the most rewarding operation is excision of the metatarsal heads when subluxation of the metatarsophalangeal joints has occurred.

In the upper limb the shoulder and elbow do not offer great surgical rewards. Fixation of the wrist may greatly improve the grip and relieve pain with increased function. Surgery of the finger joints is experimental; excision or replacement of finger joints is being increasingly undertaken with encouraging results. Tendon ruptures, especially of extensor tendons of hands, can be repaired. Relatively minor operations, such as the removal of nodules over the elbows and relief of carpal tunnel compression (a common but usually missed complication of rheumatoid disease), are very successful.

In brief it is worth seeking a surgical opinion about patients with weak painful wrists, or painful finger, hip, knee, and toe joints in the hope that surgery can ameliorate or cure these symptoms.

Prognosis

This is very difficult. Certain pointers are available, but they may be highly misleading in the individual case.⁸ The uncertainty is greatest at the onset and thus makes the decision to use potentially toxic forms of therapy at an early stage hard.

Onset before 40 years of age carries a better prognosis than illness starting later. Juvenile chronic polyarthritis fares better than the adult form.⁹ An acute onset of asymmetrical and mild joint disease, especially if there is a rapid response to treatment, improves the prognosis. The presence of marked radiological changes and severe deformity naturally impairs the prognosis. Constitutional disturbances such as fever, anaemia, weight loss, or evidence of systemic disease such as arteritis—manifesting as skin nodules, neuropathies, or visceral perforations—and marked proteinuria indicating amyloidosis all suggest a worse course.

Isolated readings of the sedimentation rate are of little prognostic value, but persistently low or high readings tend to be associated with a good or bad outlook. Severe anaemia not responding to iron or other haematinics occurs in the more severe and chronic cases. The sheep red cell agglutination test (Waller-Rose test) is a better guide, persistently positive tests (especially if the titre is high) being associated with systemic complications and a worse prognosis.

A form of rheumatoid arthritis in which a severe and widespread arteritis is the predominant feature can be differentiated as "malignant" rheumatoid. These patients develop ischaemic skin ulcers, neuropathies, intestinal perforation, and severe renal failure. At some stage corticosteroids are given, but the course is usually relentlessly downhill, death occurring in one or two years.

Death tends in general to occur at an earlier age but from the usual causes,¹⁰ except in Still's disease, where infection is a frequent cause of death, accounting for 40% of deaths over a 20-year period in one series.¹¹ More specific causes such as amyloidosis of the kidney and the effects of arteritis are rare.

APPENDIX I.—Agencies Which Help Patients with Rheumatoid Arthritis

- (1) Arthritis and Rheumatism Council, Faraday House, 8–10 Charing Cross Road, London W.C.2. Free pamphlets to general practitioners on most types of arthritis for use by patients. Also *Your Garden and Your Rheumatism* and *Your Home and Your Rheumatism*, 2s. each. Has regional associations and a journal *ARC*, both for the patient.
- (2) The British Rheumatism and Arthritis Association, 11 Beaumont Street, London W.1. An association for patients giving advice on many aspects—holidays, gadgets, etc.
- (3) The Central Council for the Disabled, 34 Eccleston Square, London S.W.1. Issues many helpful publications, especially a catalogue of room fittings and index of suppliers. *London for the Disabled*, 6s. 8d., which describes the hazards, etc., of London shops, theatres, hotels, cinemas, etc. Booklets on other major towns in preparation.
- (4) British Red Cross Society, 14 Grosvenor Crescent, London S.W.1. Many gadgets may be obtained through this society, for which price lists are available. Issues a booklet *Practical Aids for the Disabled*, which gives instructions for making simple aids.
- (5) The British Council for the Rehabilitation of the Disabled, Tavistock House South, Tavistock Square, London W.C.1. Arranges study and correspondence courses, especially suitable for vocational training.
- (6) The National Council of Social Service, 26 Bedford Square, London W.C.1. Publishes a directory, *Voluntary Social Services*, of useful voluntary organizations.
- (7) *Directory of Clubs for the Disabled in Greater London*. Greater London Association for the Disabled, 183 Queensway, London W.2. Complete directory £2.2s., individual boroughs, 5s.
- (8) Information Service, Disabled Living Activities Group, Vincent House, Vincent Square, London S.W.1. Information supplied on aids for the physically handicapped. State nature of disability and any other relevant information.
- (9) King's Fund Hospital Centre, 24 Nutford Place, London W.1. Provides a comprehensive information service for individuals and associations by means of conferences, exhibitions, and library services.
- (10) *The Consumer's Guide to the British Social Services*, Phyllis Willmott, Pelican, 1967. 6s.
- (11) *Equipment for the Disabled*, 2nd ed., 1966 (£7 7s.—4 vols.) (available in libraries). National Fund for Research into Poliomyelitis and Other Crippling Diseases, Vincent House, Vincent Square, London S.W.1.

APPENDIX II.—Simple Tests for Assessment of Progress

(1) GRIP STRENGTH

Roll the sphygmomanometer cuff up firmly and tuck the loose end in. Inflate the cuff to 150–200 mm. Hg and give several good squeezes of the cuff to evenly distribute the air in the coils of the cuff. Now reduce the pressure to 30 mm. Hg, when a firm, easily gripped sausage will be formed. Turn the scale away from the patient and get her to exert her maximal grip three times with complete relaxation between; average the results. A normal woman can exceed 250 mm. Hg and a man 300 mm. Hg. It must be emphasized that, while this test will show changes during the course of acute illness, in the chronic cases improvement is shown slowly but deterioration may be demonstrated rapidly.

(2) ERYTHROCYTE SEDIMENTATION RATE

This is a simple and very useful screening test for the presence and degree of inflammation and to follow progress. Special 200 mm. pipettes and stand are used. The pipettes must be clean and dry and held vertically. Blood and sodium citrate (3.8%) are mixed in the ratio of 4:1. A simple way of doing this is to take 0.4 ml. of sodium citrate up in a 2 ml. syringe and then withdraw from a venepuncture blood to 2 ml. Mix and aspirate into a pipette to the 200 mm. mark. Read at 1 hr. (a useful modification is to read also at 2 hr. as a further check on the 1 hr. reading). Finally run the blood out of the pipette into a container to make sure no clot has formed. The normal

value rises with age and is higher in women, but up to 60 years the reading should be below 15 mm., and above 60 below 20 mm., in the first hour.

(3) FUNCTIONAL CAPACITY

A simple grading is useful in the long-term assessment of progression or regression of the disease. The following is adapted from that proposed by the Medical Research Council.

- Grade I. Fully employable
- Grade II. Light work only
- Grade III. Unemployable—can do light housework
- Grade IV. Confined to house—can look after themselves
- Grade V. Bedridden

A further note may be made of particular disabilities—e.g., cannot manage stairs or knitting.

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ANY QUESTIONS?

We publish below a selection of questions and answers of general interest.

Senile Vaginal Atrophy

Q.—In cases of postmenopausal dyspareunia due to senile vaginal atrophy, and when oestrogens by mouth cause nausea, what form of local oestrogen treatment may be employed and for how long is it safe to use it?

A.—As an alternative to oral administration oestrogens can be applied locally to the vagina in the treatment of atrophic vaginitis, either as pessaries (stilboestrol, dienoestrol, or oestrone) or as a cream inserted by means of an applicator. Treatment should be given once every day for two weeks in the first instance. Thereafter it should be reduced to the minimum needed to keep the patient comfortable, otherwise the dose of oestrogen may be enough to cause endometrial proliferation and eventually bleeding from the uterus.

It should be emphasized that unless regular sexual intercourse is maintained the vagina will probably progressively narrow. Sometimes it helps to maintain vaginal patency and nutrition to instruct the patient to insert at regular intervals a glass vaginal dilator lubricated with a little oestrogen cream.

It has been claimed that oral quinestradiol and oestril have a selective action on the lower genital tract and that they are less likely to be associated with side-effects such as nausea and uterine bleeding. However, certainly in the case of oestril, the evidence suggests they are less apt to cause side-effects not because of a selective action but merely because they have a weaker action compared with other oestrogens.¹

REFERENCE

- ¹ Dapunt, O., and Födisch, H. J., *Geburtshilfe und Frauenheilkunde*, 1968, 28, 1142.

Hay-fever in a Child

Q.—What is the best management for a child aged 5 with severe hay-fever so that schooling may continue normally?

A.—Fortunately children aged 5 rarely have hay-fever severely enough to prevent them attending school. Antihistamines in linctus form are the treatment of choice, provided drowsiness is prevented. An elixir of brompheniramine maleate 40 mg. in 100

ml. two or three times daily has little sedative effect in many patients. It is important to keep bedroom windows shut to prevent grass pollen from blowing into the room and settling on bedclothes and furniture. It is also helpful to cover the bed with a plastic sheet which can be removed at bedtime and shaken out of doors. The room can be aired through the doorway.

Corticosteroids are best avoided, but in resistant cases drops of betamethasone disodium phosphate 0.1% may be inserted in the eye or nose. The drops should be used sparingly, however, since betamethasone is absorbed and could suppress the suprarenal glands.

When the eyes are troublesome an old-fashioned preparation such as the following is safe and often effective: aqua hammamelidis 1.7 ml., aqua rosae 1.7 ml., sodium bicarbonate 200 mg., borax 200 mg., sodium chloride 200 mg., aqua ad 28 ml. One or two drops to be applied to each eye as required.

Courses of desensitizing injections are obviously unpopular with small children, and the increase in dose should be smaller than in adults. There is some risk of general reactions, and in my opinion they should not be used at this age. It must be remembered that symptoms may be severe one year but are often much less the next year, either because the pollen count is lower or because a natural resistance is developing.

Prophylactic Penicillin

Q.—Is prophylactic penicillin therapy generally considered advisable in the puerperium for women with rheumatic or congenital heart disease? If so, what is the course recommended?

A.—Though opinion is still to some extent divided, there is general agreement that penicillin should be given to cover delivery in women suffering from rheumatic or congenital heart disease in order to prevent sub-acute bacterial endocarditis.¹ The risk of bacteraemia is obviously greatest during labour and at the time of delivery. Treatment should therefore begin at the onset of labour.

A satisfactory course of treatment would be one million units of procaine penicillin twice daily by intramuscular injection from the onset of labour, and for three days after delivery.

REFERENCE

- ¹ Schaefer, G., *Clinical Obstetrics and Gynecology*, 1968, 11, 907.

Vitamin A and Sunburn

Q.—Is there any evidence that vitamin A can prevent or relieve sunburn?

A.—The use of ingested vitamin A to prevent sunburn is a fairly recent innovation, but seems to have been adopted quite widely in the sunny climates of Australia and South Africa.¹ It seems to be based on the experimental observations by Pinkus and Hunter,² who reported that in normal individuals taking 150,000 I.U. of vitamin A daily there was an overall shift from fully keratinized to less mature epidermal cells, a relative percentage increase of basal, prickle, and granular cells, as well as the now well-known diminished keratinization owing to the retarding effect of vitamin A on the maturation of human keratinocytes. The thickness and the nature of the epidermis is of great importance in the sunburn reaction, since "stripping" of the superficial layers of the epidermis increases sunburn reactions.⁴

Australian and Rhodesian observations suggest that a daily dose of 50,000 international units of vitamin A effectively reduces sunburn and facilitates tanning. Experiments by Anderson,⁴ on the other hand, failed to show that oral vitamin A protects from the burning effects of the sun.

There is no evidence that vitamin A relieves established sunburn, but this is easily achieved with topical corticosteroids supplemented in severe cases by systemic therapy during the acute phase.

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