# Intra-articular corticosteroid therapy in general practice

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INTRA-ARTICULAR corticosteroid injection of arthritic joints has been used by many workers during the past ten years and is now widely accepted as a useful adjunct in the overall management of selected patients with rheumatoid or osteoarthritis. Most reports have concerned patients treated in hospital clinics and there is little published evidence regarding the practicability and safety of intra-articular corticosteroid injections under the conditions prevailing in general practice.

This problem has been examined in a typical general practice in London and over the past two years 40 patients have received intra-articular corticosteroid injections. For standardization purposes attention has been confined solely to the knee joint and, for the same reason, only one of the many corticosteroid preparations available, namely methylprednisolone acetate (Depo-Medrone) has been used throughout. The reason for the choice of this particular preparation need not be given here, since the advantages of methylprednisolone acetate over hydrocortisone and many of its analogues have already been well documented. (Hume Kendall 1960, Bain *et al.* 1967).

## Method

The apparatus required for the administration of intra-articular methylprednisolone acetate is simple and found in every doctor's consulting rooms. They are 2 × 10 ml disposable syringes, 25wg × 1½in. hypodermic needles, some surface antiseptic or surgical spirit, local anaesthetic (lignocaine or procaine) and sterile swabs. It is essential that absolute sterility be maintained and the procedure is best carried out in a well-cared-for treatment room, preferably using a 'no touch' technique.

The patient should be seated on the examination couch with the knee to be injected fully extended. The injection can be carried out from the anterolateral or anteromedial aspect of the knee joint, but it is easier to enter the joint space by approaching via the latter route. The point of injection is determined by palpation and is anatomically defined as a point on the anteromedial surface of the knee joint near the posterior surface of the patella. In most patients it is easily and precisely located by identifying with the fingers an indentation just below the posterior surface of the patella. After marking the point, the skin area surrounding the knee joint is thoroughly cleaned with swabs of isopropyl alcohol and the needle of a syringe loaded with with 4 to 5 ml 0·05 per cent lignocaine is gently inserted spreading a little of the anaesthetic at a time and observing the usual precautions of infiltrating local anaesthetic. Only minimal infiltration of the skin is usually required since injection into a joint especially with such a small bore needle is, as a rule, remarkably painless.

As the knee joint is entered a sudden 'give' is felt as the needle goes through the capsule. This is the best and most reliable indication that the joint has been successfully entered. Additional confirmation that the needle is in the joint space can be obtained by aspiration of some serous coloured synovial fluid into the barrel of the syringe and

this should always be attempted, although due to some arthritic joints being dry, occasionally no fluid can be obtained.

When the needle is in the joint space, approximately 2 to 3 ml of the local anaesthetic are injected. The syringe is then quickly removed leaving the needle *in situ*. Another syringe containing 1 ml of methylprednisolone acetate is connected to the needle, the syringe is then aspirated once again and the contents slowly injected. The complete needle and syringe should then be removed from the knee and the entry point cleaned and covered with a small plaster dressing. The knee is then flexed and extended several times to enable the injected material to infiltrate the joint space. Worthwhile results may be obtained even if the corticosteroid is inadvertently deposited around the joint rather than within it, although it is certainly worth extra care to make sure the injection is intra-articular rather than peri-articular.

The patients should be allowed to rest for several minutes after the injection and whilst doing so the following instructions should be given. They must go home immediately, preferably using public transport or a car, rather than on foot. They must rest the affected joint for the remainder of the day and for a further week should avoid full weight bearing as much as possible. Undue movement of the affected joint should not be indulged in despite the fact that it may quickly have become pain-free. This general advice is supplemented by specific instructions to use the joint only sufficiently to obtain essential requirements, and to climb stairs only when retiring for the evening or when going to the toilet.

Four days after the injection the patient is visited to assess improvement. At this time, the previous precautions are stressed and the patient is further advised that during the second week following the injection a graduated return to normal ambulation should be made. A set of simple exercises to strengthen the quadriceps muscles and to increase the mobility of the knee joint is also given at this time. Concomitant treatment (for example oral analgesics) should be continued.

## Results

The 40 patients treated during the past two years in the manner described above have all been shown to have arthritis of the knee, either by clear-cut clinical findings or by x-ray examination. Most of them have obtained significant relief of their symptomatology (*vide infra*) and there have been no instances where serious sequelae due to the intra-articular injection have been encountered. To illustrate the degree of improvement which can be expected, during the last year a group of eight patients were specially selected for intra-articular methylprednisolone therapy on the basis of the severity of their clinical features and the failure of analgesics supplemented by non-corticosteroid anti-inflammatory therapy with indomethacin (three patients), oxyphenbutazone (two patients) or phenylbutazone (one patient). No attempt was made to stop this concomitant therapy, and intra-articular methylprednisolone acetate should be regarded as additional rather than as a replacement for maintenance treatment with analgesics (aspirin or paracetamol) or non-steroidal anti-inflammatory agents.

Each patient received 1 ml Depo-Medrone in the affected joint by the method and with the precautions described above. In order to assess the results in a standard way a grading system was used whereby symptoms and signs were grade 0–4 as an indication of ascending severity. Five symptoms or signs were graded in this manner, namely:

1. Pain
2. Swelling of the joint
3. Mobility of the joint
4. Pain or discomfort on walking
5. The ability to climb stairs

By simple addition it is thus possible to classify the severity of arthritis and the patient's

disability into 'mild', 'moderate', or 'severe' categories (table I).

TABLE I

SYMPTOMS AND SIGNS BEFORE TREATMENT

| *Patient* | *Sex* | *Age* | *Pain* | *Joint swelling* | *Joint mobility* | *Walking* | *Climbing stairs* | *Total* |
|---|---|---|---|---|---|---|---|---|
| GG .. | F | 66 | 3 | 3 | 3 | 3 | 3 | 15 |
| CRS .. | M | 61 | 2 | 2 | 3 | 2 | 3 | 12 |
| CRN .. | F | 79 | 3 | 2 | 4 | 3 | 3 | 15 |
| AAW .. | F | 75 | 2 | 2 | 3 | 1 | 3 | 11 |
| MJC .. | F | 64 | 2 | 3 | 2 | 3 | 3 | 13 |
| JEJ .. | F | 60 | 2 | 2 | 2 | 2 | 3 | 11 |
| CAMC .. | F | 73 | 4 | 3 | 3 | 3 | 3 | 16 |
| DT.. .. | F | 68 | 3 | 2 | 3 | 2 | 3 | 13 |

0=None 1=Mild 2=Moderate 3=Severe 4=Very severe

In order to assess the efficacy of the preparation the patient was graded at onset of treatment, at four days and 28 days after the injection. It can be seen by referring to table II that at the four-day follow-up there was a moderately good to extremely good improvement in all the patients. Particular note is made that in all the patients the

TABLE II

SYMPTOMS AND SIGNS FOUR DAYS AFTER TREATMENT

| *Patient* | *Sex* | *Age* | *Pain* | *Joint swelling* | *Joint mobility* | *Walking* | *Climbing stairs* | *Total* |
|---|---|---|---|---|---|---|---|---|
| GG .. | F | 66 | 1 | 2 | 1 | 2 | 2 | 8 |
| CRS .. | M | 61 | 0 | 2 | 1 | 1 | 0 | 4 |
| CRN .. | F | 79 | 2 | 2 | 2 | 2 | 2 | 10 |
| AAW .. | F | 75 | 1 | 2 | 1 | 1 | 2 | 7 |
| MJC .. | F | 64 | 1 | 2 | 1 | 2 | 1 | 7 |
| JEJ .. | F | 60 | 1 | 2 | 1 | 0 | 1 | 5 |
| CAMC .. | F | 73 | 2 | 2 | 2 | 2 | 2 | 10 |
| DT.. .. | F | 68 | 1 | 2 | 1 | 1 | 2 | 7 |

0=None 1=Mild 2=Moderate 3=Severe 4=Very severe

severity of the pain decreased dramatically and their ability to climb stairs improved considerably. In one patient (CRN) this was of particular significance as her incontinence of urine, due to inability to reach an upstairs toilet, was overcome.

Further follow-up at 28 days (table III) showed that the patients were all pain-free

TABLE III

DEGREE AND DURATION OF EFFECT ON JOINT PAIN

| *Patient* | *Sex* | *Age* | *Pain onset* | *4 days* | *28 days* | *Total pain-free period* |
|---|---|---|---|---|---|---|
| GG .. .. | F | 66 | 3 | 1 | 0 | 6 weeks |
| CRS .. | M | 61 | 2 | 0 | 0 | 3 months |
| CRN .. | F | 79 | 3 | 2 | 0 | 2 months |
| AAW .. | F | 75 | 2 | 1 | 0 | 3 months |
| MJC .. | F | 64 | 2 | 1 | 0 | 4 months |
| JEJ .. | F | 60 | 2 | 1 | 0 | 3 months |
| CAMC .. | F | 73 | 4 | 2 | 0 | 3 months |
| DT .. .. | F | 68 | 3 | 1 | 0 | 7 weeks |

in the affected joint. Their general daily routine was happier due to less pain and discomfort and there was a noticeable general improvement. All patients reported an encouraging increase in their mobility. The average length of pain-free period (table III) was approximately 2½–3 months.

## Discussion

Since first becoming available about ten years ago, intra-articular injections of methylprednisolone acetate have had a recognized place in the hospital treatment of rheumatoid and osteoarthritis (Hume Kendall 1960, 1964; Murdoch and Will 1962, Bain *et al.* 1967). The benefits of this form of treatment can be more widely used in the general practitioner's consulting room, since the technique is entirely feasible under the conditions of good general practice. The method is simple and easy to apply and although only the knee joint has been considered here, the other large joints of the body are relatively easy to inject.

Proper selection of patients is important and the simple rules described by Hume Kendall (1960) should be followed. Certain precautions must be rigidly observed if the procedure is not to be harmful or fall into direpute through carelessness or failure to give proper instructions to the ambulant patient, especially with regard to weight-bearing joints. If the simple precautions which have been described are observed, intra-articular methylprednisolone acetate is an efficient method of reducing the pain and disability of arthritis, particularly in elderly patients, and there is no reason why it should not be used on a wider scale in general practice.

## Summary

The technique of administering intra-articular methylprednisolone acetate injections to arthritic patients seen in general practice is described. The precautions advised are presented, together with the results obtained. It is felt that use of the procedure in general practice can be safe and effective and has a definite place in the practitioner's therapy of arthritis.

### References

Bain, L. S., Balch, H. W., and Jacomb, R. G. (1967). *Annals of Physical Medicine*, **9**, 43.
Hume Kendall, P. (1960). *British Medical Journal*, **2**, 536.
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**Continuing education for general practice—Analysis of a programme**

Ninety-nine general practitioners in the Northampton area questioned as to their attendance at and opinion of various local postgraduate educational activities based on the Northampton General Hospital postgraduate centre. Most of the material provided was considered 'relevant' to the needs of the general practitioner although popularity varied. In general it was found that meetings which depended on previous study, and those which encouraged active participation were most likely to be successful.

E. D. SEYER, J. T. CORBETT, P. G. DALGLEISH, C. P. ELLIOTT-BINNS, T. A. RICHARDS, J. P. TOBY. *British Medical Journal.* 1971. **I**, 164–166.