PAIN IN TERMINAL CANCER: ITS INCIDENCE AND TREATMENT IN A GENERAL HOSPITAL

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SYNOPSIS

A retrospective study was carried out of the case records of 186 patients who died of terminal cancer in 1984 in Tan Tock Seng Hospital. 85 patients died from lung cancer and the remaining 101 patients died from other cancers. The overall incidence of pain was 37% and varied from 33% in those with lung cancers to 70% in those with rectal cancers. Pain was relieved in only 25% of the patients in pain and unrelieved in 45%. In 30% pain relief was not recorded. Analgesic therapy in these patients has been analysed to ascertain the reasons for their unrelieved pain. A therapeutic strategy, and a logical classification and use of analgesic drugs for cancer pain is described.

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INTRODUCTION

Cancer is a major health problem. It is estimated, that world wide, cancer afflicts nearly 15 million people and is responsible for 5 million deaths annually (1). Pain is a common problem in these patients and an analysis of 32 published reports (2) revealed that 70% of patients with advanced cancer had pain as a major symptom. Many published reports (2, 4, 5) indicate that more than 50% of patients with cancer pain die with unrelieved pain.

Cancer pain relief is therefore an extremely important but neglected public health issue. Effective pain management has been adopted as one of 4 priorities in a comprehensive WHO cancer programme, the others being primary prevention, early detection, and treatment of curable cancers (3). No data are available at present on the incidence of pain and the efficacy of pain control in patients dying of terminal cancer in Singapore. The present retrospective study was carried out to ascertain the incidence of pain and the degree of pain control in 186 patients dying of cancer in 1984 in Tan Tock Seng Hospital.

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MATERIALS & METHODS

In 1984 251 patients died in Tan Tock Seng Hospital from terminal cancer: 123 from lung cancer and 128 from other cancers. The case records of 186 patients were available for retrospective analysis: 85 lung cancers and 101 other cancers. The short fall was mainly in the lung cancers; hence the analysed series is roughly representative of the total number of deaths from cancer in this hospital in 1984.

The case records of these patients were reviewed with particular attention to the incidence of pain; the source, site and severity of pain; the therapy used for pain control; details of analgesics used especially maximum doses and duration of therapy; and the degree of pain control achieved. The severity of pain and its degree of control were estimated from observations made in the case records.

RESULTS

(a) The incidence of pain in the different cancers is shown in Table 1. The single patient with renal cancer and the 7 with oesophageal cancer had no pain, and the 12 patients with gliomas had headaches prior to atrioventricular shunting but none thereafter. The incidence of pain in the remaining patients varied from 33% in lung and liver cancers to 50% in prostatic and pancreatic cancers and 71% in rectal cancers. The overall incidence of pain was 37%; this rather low incidence was because of the relatively large number of lung cancers in the series and the low incidence of pain in the lung cancers.

(b) The effectiveness of pain control is shown in Table 2. Pain was controlled in only 25% of the patients taken as a whole and uncontrolled in 45%. In 30% pain control was not recorded. It will be noted that 46% to 60% of patients dying from lung, stomach, colonic, rectal and pancreatic cancers had uncontrolled pain.

Table 1
PAIN IN 186 PATIENTS WITH TERMINAL CANCER

Type of Cancer	No. of Patients Surveyed	% of Patients with pain
Kidney	1	0
Oesophagus	7	0
Brain	12	0
Lung	85	33
Liver	18	33
Colon	13	46
Stomach	21	47
Pancreas	4	50
Prostate	4	50
Breast	7	57
Rectum	14	71
All Cancers	186	37

Table 2
EFFECTIVENESS OF PAIN CONTROL

Type of Cancer	% Pain Controlled	% Pain Uncontrolled	% Control Not Documented
Lung	18	46	36
Stomach	20	50	30
Colon	33	50	17
Rectum	30	60	10
Liver	50	33	17
Pancreas	0	50	50
Breast	25	25	50
Prostate	50	0	50
All Cancers	25	45	30

(c) Analgesic therapy.
The use of the individual analgesics in these patients is shown in Table 3.

Table 3
USE OF INDIVIDUAL ANALGESICS

% of patients in pain	Drugs	Usual doses
64	Hoyle's Cocktail (Morphine Sulphate)	10 ml (5 mg) tds
53	Mefanamic Acid	2 (500 mg) tds
25	Pethidine	50 mg stat or prn
20	Paracetamol	2 (1 gram) tds
16	Codeine	2 (60 mg) tds
10	Methadone	1 (5 mg) tds
7	Pentazocine	30 mg stat or prn

Commonest Combination:
Mefanamic Acid 500 mg tds + Hoyle's Cocktail 10 ml tds ± Pethidine prn.

Opioids (Table 4) in the form of Hoyle's cocktail, codeine, pethidine and methadone were used in 79% of the patients with pain.

Table 4
USE OF OPIOIDS IN TERMINAL CANCER

Type of Cancer (No. of patients with pain)	No. of Patients in whom opioids were used	%
Kidney (0)		
Oesophagus (0)		
Brain (0)		
Lung (28)	20	71
Liver (6)	5	83
Colon (6)	4	66
Stomach (10)	9	90
Pancreas (2)	2	100
Prostate (2)	1	50
Breast (4)	4	100
Rectum (10)	9	90
All Cancers (68)	54	79

Hoyle's cocktail (Table 5), a mixture of 5 mg of morphine sulphate and 5 mg of cocaine hydrochloride in 10 ml, was given to 44 patients (64% of the patients in pain). The dose varied from 15 ml a day to 50 ml a day, the most frequent dose (in 23 patients) being 10 ml tds. It was given at shorter intervals and during the night in only 10 patients.

Pethidine was administered to 17 patients (25%). The most frequent method of administration (in 15 patients) was by stat or prn doses of 50 mg. In 2 patients regular doses of 75 mg 4 hourly and 50 mg 6 hourly were used.

Table 5
USE OF HOYLE'S COCKTAIL (5 MG OF MORPHINE SULPHATE AND 5 MG OF COCAINE HYDROCHLORIDE IN 10 ML)

Dose	Regime	No. of patients
5 ml	tds	1
5 ml	4 hourly	1
10 ml	tds	23
10 ml	qds	2
15 ml	tds	3
15 ml	6 hourly	3
20 ml	tds	2
20 ml	4 hourly	2
40 ml	qds	1
10, 10, 20, 10 + 4 hourly prn at night		1
10/15 ml prn		5

Most frequent dose regime 10 ml tds (46%).
Only 22% had doses more frequent than tds.

Codeine phosphate in a dose of 60 mg tds was received by 11 patients (16%). 2 patients received codeine alone whilst 7 received it with Hoyle's cocktail, 1 with pentazocine, and 1 with mefanamic acid.

Methadone was used in 7 patients (10%) in a dose of 5 mg tds. The drug was administered with paracetamol and pethidine in 1 patient and with Hoyle's cocktail in the remaining 6 patients.

Pentazocine (Talwin) in a dose of 30 mg prn was received by 5 patients: 3 with Hoyle's cocktail, 1 with codeine and 1 with mefanamic acid.

Mefanamic Acid (Ponstan) was received by 36 patients (53%) and was most frequently given (in 27 patients) in a dose of 500 mg tds. Of the 36 patients,

5 received this drug alone, 3 received it with paracetamol, 3 with physeptone and Hoyle's cocktail and the remaining 25 patients received it with Hoyle's cocktail. Paracetamol was received by 14 patients in a dose of 1 gram tds. 10 received it with Hoyle's cocktail, 1 with pethidine and indomethacin, 1 with mefanamic acid, 1 with Talwin and 1 received this drug alone.

The commonest combination of analgesics used was mefanamic acid 500 mg tds with Hoyle's cocktail 10 ml tds ± pethidine prn.

Case Reports

The following case reports illustrate the problems faced by patients because of inadequate pain control.

(a) Case 1. C.B.S. 38 years old Chinese female.

Diagnosis: Adeno carcinoma of the right lung with malignant pleural effusion.

1st admission: 31.5.83 to 2.7.83. Diagnosis confirmed by pleural biopsy. Started on chemotherapy.

2nd admission: 22.5.84 to 24.5.84. Severe right chest pain and breathlessness. Chest aspiration and intra pleural mustine. Discharged on Hoyle's cocktail 10 ml qds and mefanamic acid 500 mg tds.

OP reviews:
2.6.84 Still had right chest pain.
Hoyle's cocktail 10 ml qds.
5.7.84 Still had right chest pain.
Hoyle's cocktail 15 ml qds.

3rd admission: 4.9.84 to 9.9.84. "Severe pain right chest for 3 months. Main problem is pain". Pain present throughout admission and on discharge with Hoyle's cocktail 10 ml bd 20 ml o.n.

4th admission: 12.9.84 to 23.9.84. Progressive breathlessness. 600cc of fluid drained from Right chest. Given mefanamic acid 500 mg tds, Hoyle's cocktail 10 ml qds. Started on methadone 5 mg tds on 19.9.84. Severe progressive breathlessness from 20.9.84 to death on 24.9.84 without any change in drug therapy. Given nasal oxygen.

Comments: This patient's pain in the right chest was inadequately treated throughout her illness. Her second admission in May 1984 was for severe pain but she was admitted for only 3 days and discharged whilst still in pain. Pain was unrelieved over the next 4 months as an outpatient and treated with small increases of Hoyle's cocktail. Her third admission in September 1984 for severe chest pain was for only 5 days inspite of the doctor's comments that pain was her main problem. Pain was unrelieved on discharge. Her last admission 3 days later was dominated by breathlessness which was unrelieved and severe for 4 days preceeding her death. There was no increase in the dose of oral morphine which would have relieved her breathlessness.

(b) Case 2. A.D. 57 years old Indian male.

Diagnosis: Carcinoma of the descending colon.

1st admission: 5.6.84 to 3.7.84. Palliative anastomosis between transverse and descending colon for inoperable tumour of descending colon.

2nd admission: 29.7.84 to 31.7.84. Lt sided abdominal pain, vomiting and diarrhoea for 2 days. Discharged on Mefanamic Acid 500 mg tds and Hoyle's cocktail 10 ml tds.

3rd admission: 22.8.84 to 18.9.84 for persistent left sided abdominal pain, vomiting and diarrhoea. Prescribed Hoyle's cocktail 10 ml tds and pethidine 50 mg 6 Hourly prn. Received pethidine repeatedly from 24.8.84 to 27.8.84. On 30.8.84 pentazocine (Talwin) 30 mg prn was substituted for pethidine and on 11.9.84 Hoyle's cocktail was increased to 15 ml 6 hourly. On the day of death (18.9.84) 3 doses of pentazocine were given at 3.45 am, 7.40 am and 4 pm. Throughout this admission diarrhoea and vomiting were persistent.

Comments: This patient had uncontrolled abdominal pain and diarrhoea for almost 2 months prior to death. Pain control was poor and 2 weeks before his death pentazocine was prescribed although this opioid agonist antagonist would have antagonised the action of Hoyle's cocktail which was being given in inadequate doses. Mefanamic Acid prescribed during his 2nd admission could have aggravated diarrhoea due to the tumour.

(c) Case 3. L.S.N. 61 years old Chinese female.

Diagnosis: Carcinoma of the Rectum.

1st admission: 27.1.82 to 15.3.82. AP resection with sigmoid colostomy; metastases in pericolic nodes already present at the time of operation.

OP reviews:
24.11.82 Perineal pain.
Given Mefanamic Acid (? dose).
For review in 3 months.
2.2.83 Perineal pain. Paracetamol (? dose) and indomethacin 25 mg tds.
2.3.83 Pain in perineum and lower end of sacrum. Mefanamic Acid and paracetamol (? doses).
16.3.83 Still had perineal pain.
Methadone 5 mg bd.

2nd admission: 18.3.83 to 19.3.83. Pain around coccyx. Discharged on codeine phosphate 30 mg tds.

OP reviews:
30.3.83 Perineal pain. Codeine (? dose) and Diazepam 10 mg on.
Referred to Radiotherapist.
13.8.84 Perineal pain recurred.
For symptomatic treatment. No details of drug therapy.
24.9.84 Still had perineal pain with cough and breathlessness. Chest x-ray revealed secondaries in lungs. Mefanamic acid 500 mg tds and Hoyle's cocktail 10 ml tds.

3rd admission: 29.11.84 to 22.12.84. Main complaint now was breathlessness. Crepitations and rhonchi in both lungs. Given oxygen and broncho dilators. Dyspnoea was unrelieved and was very severe for the last 48 hours before death.

Comments: Perineal pain was present for 4 months between November 1982 and March 1983 and was ineffectively treated with paracetamol, indomethacin, mefanamic acid, codeine and methadone in small doses and in an unsystematic manner. Her second admission was for only 2 days and she was discharged with unrelieved pain. Pain subsequently controlled by radiotherapy and chemotherapy recurred in August 1984 and was unrelieved for the next 2 months. Severe and progressive breathlessness dominated her last admission and the last 3 weeks of her life. Oral morphine which would have relieved this symptom was not prescribed.

DISCUSSION

Only 25% of the patients in pain in this series received adequate relief from pain and 45% died with pain still not controlled adequately. The main reason for failure to control pain was the inadequate use of analgesic drugs. The usual approach to pain control in these patients was to prescribe mefanamic acid 500 mg tds. The next step, if pain control was inadequate was to add Hoyle's cocktail 10 ml tds. Hoyle's cocktail, as used in this hospital in 1984 contained 5 mg of morphine and 5 mg of cocaine in 10 ml.

Since the parenteral dose of morphine is equivalent to one third of the oral dose, these patients received the equivalent dose of only 1.6 mg of morphine parenterally tds together with mefanamic acid 500 mg tds. It is not surprising that their pain was not relieved. The next step in those with unrelieved pain (in 12 patients) was to add a small dose of methadone (5 mg tds). Codeine and paracetamol were used in a haphazard and unpredictable manner and did not contribute appreciably to pain control. Pentazocine (Talwin) was used in 5 patients, 4 of whom were already on Hoyle's cocktail and in these 4 patients it would have antagonised the analgesic effects of the small doses of opioids they were receiving.

Other reasons for inadequate pain control were:

(1) 160 of the 186 patients were followed up by multiple doctors and only 26 patients were under the care of the same doctor throughout their illness. This would have made pain assessment difficult.
(2) No attempt was made in many patients to carry out an adequate diagnostic assessment of pain. Very often only the site of pain was mentioned in the notes.
(3) Patients with uncontrolled pain were often seen at long intervals (1 month or more) and it was difficult to rapidly increase analgesic therapy at these intervals.
(4) Some patients admitted for inpatient assessment and treatment of pain were discharged after a few days with pain still uncontrolled.

Numerous published reports also indicate that cancer pain has not been adequately treated elsewhere.

A study by Marks and Sachar (4) in 1973 in Montefiore Hospital in New York revealed that 73% of patients prescribed opioids did not have satisfactory relief because of significant under treatment.

Parkes in 1978 (5) found that 67% of hospital patients with terminal cancer had moderate pain and 22% had very severe pain at the time of death. Bonica in 1985 (2) analysing 11 reports covering nearly 2000 patients in developed countries found that 50 to 80% of patients did not have satisfactory pain relief.

On the other hand Saunders (6) reviewing 3362 case records in St Christopher's Hospice, London, found that the use of well established principles of pain control enabled satisfactory pain relief in 99% of the patients reviewed (pain was difficult to control in only 34 patients).

The classification of analgesics, the principles of using them, the individual drugs, nerve blocks and finally the total approach to the patient will now be discussed.

(1) The classification of analgesics and principles of using them

The initial step in satisfactory pain relief is an adequate diagnostic assessment of pain. Whilst this is being done, analgesic therapy should be started at once even though specific anti cancer treatment methods are being simultaneously utilised, (Fig 1). Analgesic therapy is the mainstay of cancer pain management and is capable of controlling pain in more than 90% of patients (3).

Fig 1
SEQUENTIAL APPROACH TO CANCER PAIN MANAGEMENT, (MODIFIED FROM "CANCER PAIN RELIEF", WHO 1986)

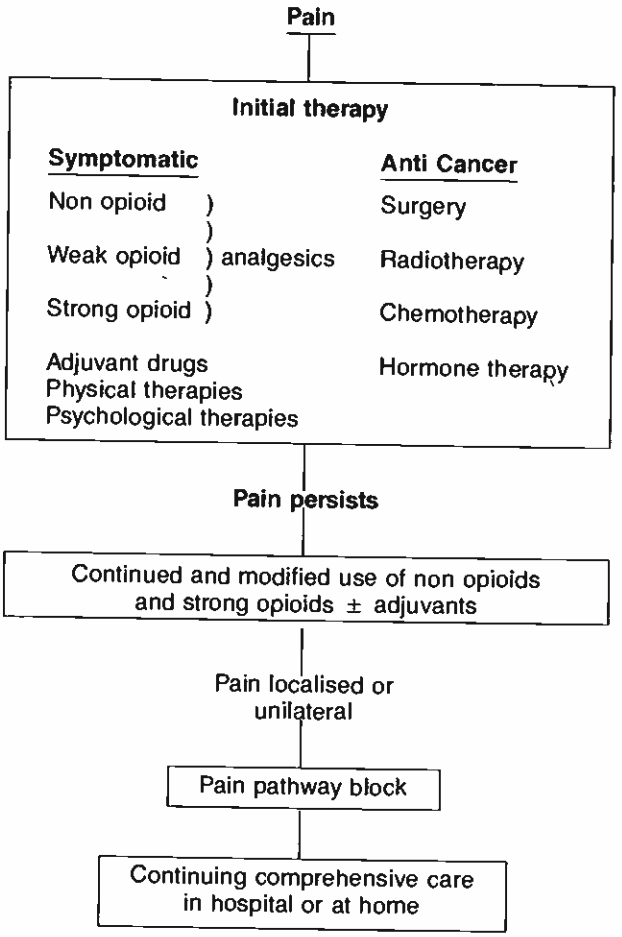

Fig. 1: **SEQUENTIAL APPROACH TO CANCER PAIN MANAGEMENT, (MODIFIED FROM "CANCER PAIN RELIEF", WHO 1986)**

Analgesic therapy is simplified by utilising a logical classification of these drugs and a logical sequence of using them. Analgesic drugs can be classified as

(a) Non opioids such as asprin, paracetamol, non steroidal anti inflammatory drugs.
(b) Weak opioids such as codeine;
(c) Strong opioids such as morphine, methadone, pethidine;
(d) Opioid agonists-antagonists such as pentazocine (Talwin) and buprenorphine (Temgesic).

Non opioid drugs, specifically the NSAIDs, appear to act peripherally by inhibiting the prostaglandin system whereas opioid drugs bind to opioid receptors in the CNS and have morphine like actions. Opioid agonists-antagonists have morphine like actions given alone but antagonise the action of morphine or other agonists when given with or after these drugs. Because of the different modes of actions of opioids and non opioids, combinations of these 2 types of drugs produce additive analgesic effects.

2 key concepts underlying the use of analgesics in cancer pain management are "by the clock" and "by the ladder" (3).

(a) "By the clock"
Analgesics are given on a regular basis "by the clock", the dose being titrated against the pain until the patient is comfortable. The next dose is given before the effect of the previous dose has worn off. This will result in continuous pain relief and the use of smaller doses of analgesics. There is no place for prn therapy in cancer pain relief.

(b) "By the ladder"
A 3 step analgesic ladder is suggested (Table 6 and figure 2). The 3 standard drugs making up this ladder are paracetamol or asprin, codeine and morphine. The first step should be to use a non opioid e.g. paracetamol in adequate dosage and frequency. If this is ineffective, a weak opioid, codeine, should be added.
If this combination fails to relieve pain, the weak opioid should be stopped and a strong opioid, morphine added to the non opioid.

	Parent drug	Alternatives
Strong Opioid	Morphine	Buprenorphine (Temgesic) Methadone Pethidine
Weak Opioid	Codeine	
Non Opioid	Paracetamol	Asprin NSAIDs

Table 6. **A SIMPLE ANALGESIC LADDER MODIFIED FROM TWYCROSS & LACK, 1983 (7)**

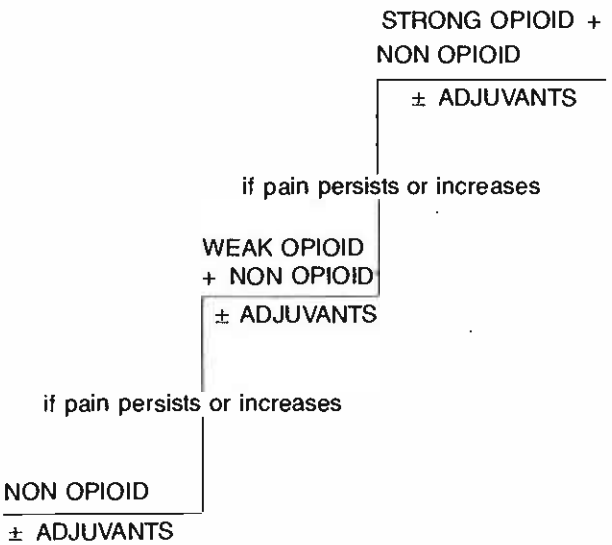

Fig. 2. **THE ANALGESIC LADDER FOR CANCER PAIN MANAGEMENT (MODIFIED FROM "CANCER PAIN RELIEF", WHO 1986)**

The remaining principles of using analgesic drugs can be summarised as follows:

(c) Oral drugs should be used whenever possible for the sake of convenience.
(d) The dose of an analgesic should be determined on an individual basis and should give relief for about 4 hours. The doses of morphine and other strong opioids in the absence of side effects can be increased indefinitely unlike those of non opioids, weak opioids and opioid agonist-antagonists.
(e) Side effects must be treated systematically. All patients on strong opioids need laxatives and two thirds need an anti emetic. Clinically important respiratory depression is uncommon but must be watched for in susceptible patients.
(f) For some types of pains, opioids have to be combined with certain adjuvant drugs. For example, for bone pains with asprin or NSAIDs; for nerve compression pains with prednisolone or amitryptylene and for bladder and rectal tenesmoid pains with chlorpromazine. Some types of pains will not respond to opioids but will respond to other drugs e.g. gastric distension pains to metoclopramide (Maxolon); intermittent stabbing pains of nerve compression to carbamazepine; and muscle spasm pains to diazepam.

(2) **The individual drugs**

(a) The Non opioid drugs.
The main non opioid drugs used in the analgesic ladder are paracetamol and asprin. Paracetamol is the drug of choice for mild or moderate pain because of its lack of side effects. It is used in a dose of 1 gram 4 hourly to a maximum dose of 6 grams in 24 hours. Doses should be reduced in the presence of liver disease as the drug is metabolised by the liver. Asprin's main use because of its anti prostaglandin effect is in painful bone secondaries where an average dose of 600 mg 4 hourly is used. It is used as either soluble asprin, enteric coated asprin (Ecotrin) or asprin glycine (Paynocil). Alternative non opioids are the NSAIDs. Mefanamic acid, the main NSAID used in our patients should be avoided in colonic neoplasms because 10% of patients on this drug develop diarrhoea due to faecal excretion of the drug and this can be confused with diarrhoea due to the neoplasm. Other side effects of this drug are peptic ulceration, haemolytic anaemia, leucopenia, and hepatitis. A watch should be kept for side effects especially diarrhoea if the drug is used for long periods. The FDA in the U.S. restricts its use to 1 week (8).
(b) Codeine phosphate is the chief weak opioid used in these patients in a maximal dose of 60 mg 4 hourly. It is a very useful weak opioid as it has 25% of the analgesic potency of morphine with only 10% of its side effects.
(c) Morphine is the strong opioid of choice as its pharmacokinetics are linear and it is relatively easy to titrate the dose against the pain. It is metabolised by the liver and excreted in the urine. Its duration of action is about 4 hours. It is used in cancer pain in 3 forms: oral, suppository and parenteral.

Oral morphine sulphate is used as Mist. Morphine, a simple aqueous solution with a standard strength of 10 mg in 10 ml. It can be prepared in higher strengths if necessary: 20 to 50 mg in 10ml to reduce the volume of the mixture taken by patients on large doses. The usual starting dose is 10 mg 4 hourly but this dose should be reduced to 2.5 mg to 5 mg in frail or elderly patients. A 50 to 100% increase in the bed time dose will avoid the optional dose at 2 am. For uncontrolled pain, the dose should be increased gradually (about 2 increases per day) but not exceeding 50 to 100% per day. Most patients in pain can be relieved satisfactorily by a dose of 5 to 30 mg 4 hourly but it can be increased gradually to a dose of 500 mg 4 hourly if the need arises and in the absence of side effects.

Oral morphine sulphate can also be used as controlled – release morphine sulphate (MST Continus) available commercially as 10mg, 30mg, 60mg and 100mg tablets. Controlled trials (9) have shown this formulation to be equianalgesic, mg for mg, with oral morphine sulphate solution. Thus Mist Morphine Sulphate 10 ml (10mg) 4 hourly is equivalent to MST Continus 30 mg 12 hourly. MST Continus is effective over 12 hours and is therefore prescribed twelve hourly. The tablets should not be crushed or cut. It cannot also be used for break through pain since it takes 4 hours before effective blood levels are reached. Many hospices in the United Kingdom achieve satisfactory pain control with oral morphine

sulphate solution 4 hourly initially and then convert to an equivalent 12 hourly dose of MST Continus as the twice daily dosage of the latter is more convenient for the patient.

An anti emetic and laxative should be started simultaneously with morphine. The anti emetic can be stopped later in about 30% of patients especially those receiving less than 20 mg 4 hourly, but the laxative needs to be continued.

Patients should be warned and reviewed frequently during the first weeks for the degree of analgesia and the initial side effects of vomiting, drowsiness, unsteadiness and confusion. These side effects will gradually clear. Respiratory depression is uncommon but those patients liable should be observed for this complication. Care should also be taken in the presence of liver failure since the drug is metabolised by the liver.

Psychological dependance (addiction) does not occur but physical dependence and tolerance do occur. To avoid withdrawal symptoms such as restlessness, sweating and faecal incontinence, morphine should not be stopped abruptly either if pain is successfully controlled by specific anti cancer therapy or in unconscious patients close to death. In the latter morphine can be continued in rectal suppositories 4 hourly, using a dose equivalent to the oral dose; as subcutaneous or intra muscular injections 4 hourly using 1/3rd of the oral dose initially; or as a continuous intravenous infusion using 1/4th of the oral dose initially, readjusting thereafter. The dose of I.V. morphine in 1 published series ranged from 0.8 to 80 mg/hour with a median dose of 2 to 4 mg/hour (10).

(d) Pethidine has only 1/8th of the analgesic potency of morphine and its duration of action is only 2 to 3 hours. It should not be used in chronic cancer pain except to provide peaks of extra analgesia in patients already stabilised on an oral opioid.

(e) Methadone is a complicated opioid to use because its half life on repeated administration prolongs to 72 hours, thus predisposing to cumulation, drowsiness and coma. Like pethidine it should only be used in cancer pain if true morphine allergy or intolerance occurs. It should be avoided in the elderly, those with raised intracranial pressure and confusional symptoms and in the presence of respiratory, liver and kidney failure. Paalzow (11) recommends that 10 mg to 15 mg should be given during the first day at 0, 6, 12 and 24 hours and then once every morning thereafter. Levy (12) suggests that 5 mg 6 hourly be given for 48 hours and the dose is thereafter increased or decreased once in 3 days according to pain control, the total dose varying from 20 to 80 mg a day. Both methods of administration point to the caution with which the drug should be administered. Cimetidine should be used with caution because it inhibits the metabolism of methadone and aggravates its side effects. Rifampicin acts in the opposite manner and can lead to uncontrolled pain.

(f) Buprenorphine (Temgesic) is an agonist antagonist and should not be used with morphine or other agonists. It is well absorbed sublingually and its long duration of action of 8 hours is an advantage in controlling cancer pain. It has the same side effects as morphine: vomiting, drowsiness, dizziness and constipation. Respiratory depression is uncommon. 1 sublingual tablet is 0.2 mg and its maximum dose of 1 mg 8 hourly is equivalent to a dose of 30 mg 4 hourly of oral morphine. It has 70 times the potency of oral morphine. Hence multiplying the total daily dose of buprenorphine by 70 will give the equivalent total daily dose of oral morphine for those patients converting from buprenorphine to morphine because of either unacceptable side effects or uncontrolled pain.

(3) **Nerve blocks and neurosurgical blocks** are only necessary as a supplementary approach in a small number of patients who do not respond to analgesic therapy.

(a) Nerve blocks

A temporary nerve block for a diagnostic or therapeutic purpose is carried out using a long acting local anaesthetic eg bupivacaine (Marcaine). A more lasting block is carried out using a neurolytic (destructive) agent eg. alcohol or phenol. Nerve blocks used are those of the peripheral nerves such as the brachial plexus; the autonomic ganglia such as the coeliac and lumbar ganglia; and epidural and subarachnoid blocks. Sites of pain for which a nerve block should be considered and an anaesthetist consulted are:

Upper limb brachial plexus pressure pains.
Lower limb pains from involvement of the lumbo sacral plexus.
Hemithoracic pains.
Epigastric pains from spread of stomach, pancreatic, or other epigastric neoplasms.
Pelvic and pereneal pains from advanced gynaecological and colorectal cancer.

Perhaps the most useful block is that of the coeliac plexus for severe epigastric pain from advanced pancreatic and other epigastric neoplasms.

(b) Neurosurgery

Intractable pain can also be dealt with neurosurgically. The most useful neurosurgical procedure for cancer pain below C5 is percutaneous cordotomy at C1 — C2 level. Other neurosurgical procedures are: percutaneous trigeminal gangliolysis and rhizotomy for craniofacial pain; hypophysectomy for pain caused by breast or prostatic cancer and bilateral stereotaxic cingulotomy to modify pain response when all other measures have failed. A new and still developing procedure involving intraspinal administration of opiate via a permanently implanted epidural catheter has also been successful in relieving intractable cancer pain.

(4) **Comprehensive care of the patient as a whole** and a satisfactory relationship with the patient and his family are essential in the control of pain in cancer. Pain is a dual phenomenon. Firstly there is the patient's own perception of pain and secondly the patient's emotional reaction to the pain. There are certain factors which lower the pain threshold and others which raise it (Table 7).

Threshold lowered	Threshold raised
Discomfort	Relief of symptoms
Insomnia	Rest
Fatigue	Sleep
Anxiety	Sympathy and concern
Anger	Specific drug therapy:
Depression	Analgesics, Anxiolytics,
Mental isolation	Antidepressants

Table 7. **FACTORS AFFECTING PAIN THRESHOLD MODIFIED FROM TWYCROSS & LACK, 1983 (13)**

Hence as Bonica stated "It is important to emphasize that regardless of which of the major approaches is used, physiological and psychological support of the patient and his family is an essential if not the most esential part of the management of patients with cancer pain" (14).

Good background knowledge of the patient and his family obtained during the initial inpatient assessment, continuity of care by arranging for the patient as far as possible to see the same doctor throughout his illness, and frequent and sympathetic reassessment are all necessary. Finally the importance of the doctor patient relationship in the control of cancer pain cannot be over emphasised.

Possner (15) writing in a symposium on pain management comments on the experience of Hammond (16) who stated that what has been most perplexing in his experience with organically based pain is the unnecessary suffering that patients are subjected to because their physicians are reluctant to prescribe adequate amounts of analgesic medication, particularly since few acutely ill patients become addicts and addiction in the terminally ill is exceedingly unlikely. Hammond believed that undermedication of pain is a symptom of widespread pathology in the doctor patient relationship and suggested that physician stoicism stems from the unremitting stressfullness of the medical training process and the use of emotional withdrawal as a defence by the physician. Garfield (17) mentions that another reason for the seeming indifference of the physician is the attempt "to remain objective, born of the notion that to become emotionally accessible to one's patients implies a loss of scientific objectivity, a compromising of rational judgement and a decrease in time effective management of one's case load".

Garfield disagreeing with this view notes that such attempts by the physician at decreased emotional involvement are frequently experienced as painful abandonment by seriously ill patients. He points out that the word "care" derives from the Gothic "kara" which means "to lament, to experience sorrow", and that the basic component of caring, namely empathy, is better expressed by the German translation "einfuhlung" meaning "to feel oneself into". Similarly, Hillier, a contemporary English physician (18): "All this emphasises that, in order to care for the terminally ill effectively, one needs to get slightly under the skin of the patient; one of the best ways to do this on a general surgical or medical ward round, is to imagine oneself on the patient's bed, looking out and seeing what the doctors are doing and hearing what they are saying through the patient's eyes and ears. By doing this, occasionally one is reminded how easy it is for doctors to be insensitive, tactless or even rude — all qualities which render good communication impossible. If one can feel just a little of what the patient feels, then much can be learned".

A more strongly expressed view is that of the 17th century English physician, Thomas Sydenham. This passage from his writings was quoted by Dr Cicely Saunders at the end of her book on terminal care (19).

"Finally, the physician should bear in mind that he himself is not exempt from the common lot, but subject to the same laws of mortality and disease as others, and he will care for the sick with more diligence and tenderness if he remembers that he himself is their fellow sufferer".

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