are exposed to unnecessary and potentially harmful radiation and surgical intervention and, in addition, resources are wasted. Large studies of children who have swallowed foreign bodies do not show that ingested coins that have passed beyond the cardia cause complications in children with a normal gastrointestinal tract^{1,3}; only one such case seems to have been described.⁴ Furthermore, the potential hazard of prolonged asymptomatic gastric retention of swallowed coins (more than two weeks) may have been exaggerated. In our experience such coins eventually pass spontaneously and, under experimental conditions of gastric acidity, the dissolution of toxicologically significant quantities of metal is unlikely to occur (I M House, National Poisons Unit, Guy's Hospital, London, personal communication).

The management of swallowed coins in children in the United Kingdom could be improved. Adopting the scheme outlined in the figure would reduce the radiation dose received by many children and produce a considerable financial saving. An initial single anteroposterior radiograph of the neck and chest is advisable even in asymptomatic patients because of the dangers from silent oesophageal impaction.⁵ A lateral radiograph may then be necessary to localise coins in the

neck and upper chest. When the coin is below the cardia only symptomatic patients require further assessment. Searching of stools is both unpleasant and inaccurate.

Children who swallow other types of foreign bodies or whose gastrointestinal tracts are abnormal from known congenital stenoses or previous surgery must be judged individually. Many children swallowing other foreign bodies can be managed by a similar policy of minimal intervention, but previous surgery, such as pyloromyotomy, should alert doctors to the possibility of abnormal retention of the coin and indicates the need for follow up.⁶

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Therapeutic ratio and defined phases: proposal of ethical framework for palliative care

Michael Ashby, Brian Stoffell

I cannot define an elephant but I know one when I see one.¹

The everyday practice of oncology and palliative care raises complex moral issues. Examples include: When should radical curative treatment be stopped—or rejected from the outset as an option? Do measures for the relief of symptoms shorten life? When should active drug treatments—for example, antibiotics and steroids—be stopped? (Similar questions can be asked about support of physiological systems: blood transfusion, ventilation, renal dialysis, intravenous hydration and nutrition.) What steps should be taken when food and drink can no longer be taken by mouth? How should we deal with differences of opinion about management arising among patient, family, and carers? What is the relation between euthanasia and palliative care? We propose to examine these questions in a framework that divides the therapeutic interaction into three phases or modes: curative, palliative, and terminal.

Risk-benefit analysis or the therapeutic ratio is widely used in pharmacology and oncology to describe the ratio of risk of unwanted side effects (treatment related toxicity, morbidity, or mortality) to desired effect. Without determining the therapeutic ratio well reasoned or informed clinical decisions cannot be made as most proposed actions will have both desired and unwanted outcomes.

The probability of expected effects or end points may be defined by either the doctor or the patient.

There may well be congruence or disagreement between these points of view. Mitchell discussed this observer variation with regard to the prevention of postoperative pulmonary emboli, for which some studies had shown an improvement in the radiological end points, but the only question the patients were interested in was whether they would die of a pulmonary embolus.² Similarly, with the treatment of cancer a tumour response may or may not be translated into a survival advantage or better control of symptoms for the patient.^{3,4} Observer variations among patients, carers, and staff; differential goal setting; and problems of evaluation are all well documented.^{5,7} In our model all treatments that are thought to offer partial responses are classed as palliative, and it requires that the partial response must also have some favourable influence on symptom control or quality of life. The table summarises the three phases or modes.

Curative, palliative, and terminal modes

The curative mode is the phase of therapeutic intervention in the natural course of a disease in which cure or durable complete remission is a realistic expectation. Prolongation of life and survival are the aims, and a high rate of treatment related toxicity and morbidity, and even a low level of mortality, may be acceptable. Comfort is a secondary issue; when a comfort measure conflicts with survival the supremacy of survival is the dominant theme.

The palliative mode is a phase in the natural course of a disease in which curative treatment is not expected to prolong life. Alternatively, the gain in weeks or months that might reasonably be expected may be seen to be outweighed in quality or value by the intensity or duration of the treatment related toxicity, morbidity, or risk of mortality. Therapeutic endeavours or investigations are directed at the supremacy of comfort, symptom relief, and general wellbeing. The level of

Royal Adelaide Hospital,
North Adelaide, SA 5006,
Australia
Michael Ashby, FRCR,
director of palliative medicine

Flinders Medical Centre,
Bedford Park, SA 5042,
Australia
Brian Stoffell, PhD, director
of medical ethics unit

Correspondence and
requests for reprints to:
Dr Michael Ashby, Mary
Potter Hospice, Calvary
Hospital, PO Box 231,
North Adelaide, SA 5006,
Australia.

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Priorities in three modes of treatment of incurable disease

Mode	Supremacy	Survival	Toxicity	Measures to support physiological systems	Artificial hydration and alimentation
Curative	Survival	Prolong	May be high	Yes	Yes
Palliative	Quality and value of life	No	Low	Maybe (for quality only)	Maybe (for quality only)
Terminal	Quality and value of life	No	None	No	No

toxicity acceptable in this mode is consequently lower than in the curative mode.

The terminal mode is the phase in which death seems inevitable and imminent. There is clinical evidence of the final part of the dying process with poor appetite, weight loss, recumbency, lassitude, failure of physiological systems, and progression of the disease. The process of anticipatory grief may have commenced for both patient and family. The intake of food and fluid decreases, and although both are always available (that is—they are never withdrawn), no form of artificial hydration or alimentation is undertaken. All measures not required for comfort are withdrawn, and no treatment related toxicity is acceptable.

Transitions

The transition from one mode to another may be either painful and problematic or smooth—the last being more likely when the issues of death and dying have been faced. A precise point of transition may not always occur, in particular in some haematologic malignancies and AIDS, in which “active” treatment may continue until very soon before death.

Patients must be given the chance to acknowledge which mode of treatment they are in. Nevertheless, the patient’s social context of family and friends will loom large in many decisions. Differences of opinion among patients, families, friends, and carers will usually be resolved by discussion and, if necessary, by case conferences. Families may be counselled that withholding the truth causes emotional pain for most patients.⁸⁻¹⁰ Matters take a different turn when the patient is no longer competent. In this case the next of kin are usually consulted, although in exceptional circumstances an agency such as a guardianship board may be required. The palliative and terminal care for geriatric and psychogeriatric patients may be especially difficult.¹¹

We do not use the terms, “ordinary” measures or “extraordinary” measures—a distinction that marks off measures taken to be morally obligatory from those that may be legitimately abandoned.^{12,13} We think this distinction is irrelevant as we are seeking to present a framework within which all plausible measures are weighed in terms of their impact on the patient’s interests. A person’s interest will sometimes be met by the curative mode and sometimes by the palliative mode, when comfort measures hold sway. In neither case are we relying on any secondary notion of prolongation of life.

Discussion

Two barriers stand out in the delivery of palliative care. The first is the frank acknowledgment of the clinical realities of palliative care; the second is a misconception about the relation between palliative care and euthanasia.

Clinicians and relatives still often fear that if patients are confronted with the full clinical reality they will give up the ghost and so do much worse than would be the case if they were in good spirits. This fear is exacerbated by myths such as that morphine is addictive or synonymous with “the end” and that palliation is at best a very poor second best for clinicians who are deeply imbued with the curative model of care. Cassidy explained that life is seen by many people as a series of minor losses escalating toward death at the end of a terminal illness and that death is often attended by conspiracies of silence, alienation, selective attention, and false reassurances.⁸

Patients and their families are all too often willing coconspirators with their doctors and carers to try treatments whatever the odds and the toxicity. Yet

few—given full information—would argue that death should be defied at all costs. That the support of one failed physiological system after another during the dying process is unacceptable has been shown by the protracted deaths of three famous twentieth century heads of state—the Tito-Franco-Hirohito paradigm. Death denying attitudes with unrealistic expectation of medicine by both doctors and their patients are common sources of distress for patients with incurable cancer.

Relatives are usually unfamiliar with the features of the normal dying process. Reassurance may be needed that dying people usually want only enough food and drink to keep them comfortable—and frequent mouth care. The myths of terminal dehydration and starvation should be dispelled.^{14,15} Attempts to artificially hydrate and feed the dying, particularly insertion of nasogastric tubes, are likely to add to distress rather than relieve it.

Euthanasia is an issue often raised in the context of palliative care. Though the linkage is understandable and the debate which connects them fruitful, there are two serious conceptual errors to be avoided. The first of these two mistakes is evident in those who believe—quite correctly—that improvements in palliative care may reduce the numbers of those who wish to avoid further suffering by a quick death. From this empirical assumption it is falsely inferred that the moral case for active voluntary euthanasia lapses. Improvements in palliative care are one thing; how someone chooses to use their availability is quite another.

The second error is somewhat more complex. The achievement of comfort and symptom control is the dominant concern of the terminal mode of care, and, just as we accept a level of morbidity in the curative mode, so should a risk of premature death be recognised as a possibility attendant on palliation. There is, however, no evidence that the skilled and appropriate delivery of palliative care measures (in particular the use of opioid analgesics and anxiolytic drugs) shorten life, and the natural course of unrelieved suffering must surely be unfavourable by comparison. Within the terminal mode we operate with a therapeutic ratio that balances symptom relief against a risk of death; we do not seek death—even a good or easy death—as a means of achieving relief. To seek an easy death through analgesia would be active (voluntary or non-voluntary) euthanasia.

Moving into the terminal mode implies that further therapeutic measures that do not address palliative issues will cease, and this decision is based on a judgment about clinical effectiveness. Hence in the terminal mode most therapeutic measures are likely to be useless. This recognition and the clinical judgments on which it is based are not usefully equated with what Rachels and others refer to as “passive euthanasia.” In Rachels’s formulation “Passive euthanasia” . . . simply means refraining from doing anything to keep the patient alive.^{16,17}

To withhold an effective treatment because death is sought is to act in order to realise an end, much as to give a lethal injection would be. However, to withhold an ineffective treatment because it would have little chance of working is simply avoiding the futile.

Increasingly often therapeutic decision making is being assessed on the basis of cost-benefit analysis.¹⁶⁻¹⁸ This is due to escalating costs of health care and increased demand in most developed countries. We believe that our first endeavour should be to examine individual intention to treat issues on the basis of the therapeutic ratio, as outlined, and not on cost. This approach should lead to a reduction in inappropriate use of precious resources to treat patients with curative intent when the mode is palliative. A clearer idea of which treatments are curative, palliative, or experimental in a given clinical setting would lead to both

better patient care and savings.¹⁷ This aspect should be addressed firstly on the basis of asking the question "Is the therapeutic ratio favourable and realistically constructed for this patient and this proposed treatment?" and not "Is it more cost effective to treat this patient than another patient?"

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Lesson of the Week

Leprosy in reaction: a medical emergency

Adam S Malin, Michael F R Waters, Suhail A Shehade, Marguerite M Roberts

The clinical course of leprosy in immunological reaction is often acute and rapidly progressive

Leprosy is a chronic granulomatous infectious disease that primarily affects the skin and nerves. The progress of the disease is often considered to be slow and indolent. However, skin or nerve lesions may suddenly flare up in a state of immunological reaction (lepra reaction), of which two main types are recognised: reversal (upgrading) reaction (type I reaction) and erythema nodosum leprosum (type II reaction). Delayed treatment of these reactions may result in irreversible nerve damage.¹ The three cases described below illustrate the difficulties in diagnosis and the problems that may ensue if lepra reactions are not promptly recognised and treated.

Case reports

CASE 1

A 26 year old Nigerian was seen by a neurologist in an outpatient department in August 1989. Two weeks earlier he had developed swelling of his right ring finger, pains in his right hand up to his elbow, and pains in his left knee and ankle. He also complained of numbness in his right hand and over his entire left leg. After one week he had developed pain and numbness in his right foot. Examination showed weakness and sensory loss in the distribution of the right ulnar nerve and swelling of the proximal interphalangeal joint of his right ring finger. In his legs there was weak dorsiflexion and eversion of the left foot. There was profound sensory impairment to pinprick in the right foot and the whole of the left leg up to the groin. Tendon reflexes were present and plantar responses were flexor. The combination of the nerve damage and the swollen small joint suggested a connective tissue disease and non-urgent admission was arranged. The patient was admitted 14 weeks later because of shortage of beds.

By the time of admission his neurological deficit had progressed. He was unable to straighten his right ring finger and little finger, had difficulty walking, and was kept awake at night with pain in his left leg. Examination showed total right ulnar and left common peroneal nerve palsies with complete footdrop. These nerves were considerably thickened bilaterally and there was moderate enlargement of superficial nerve branches over the wrists and dorsa of the feet. He had hypoaesthetic, hypopigmented macules over his arms,

and a large area of hypopigmentation which corresponded with the anaesthesia over his leg. The clinical diagnosis of leprosy was confirmed by skin biopsy. He was transferred to the Hospital for Tropical Diseases. Slit skin smears were negative for acid fast bacilli. These findings confirmed the diagnosis of borderline tuberculoid leprosy, and the rapid development of neurological damage and the results of electromyography indicated a severe reversal reaction affecting nerves rather than skin.

Chemotherapy was started with rifampicin 600 mg daily for two days (then repeated on the first two days of each month), clofazimine 100 mg daily, and dapsone 50 mg daily. For the reversal reaction he was given prednisolone 60 mg daily. Physiotherapy was started, and he was fitted with a splint for his footdrop and given insoles and shoes to protect his anaesthetic feet.

After 48 hours the pain in his left leg disappeared and the dose of prednisolone was reduced to 40 mg daily. He gradually regained power in his left foot and by three weeks was able to evert and dorsiflex the ankle against gravity. There was no improvement in the right ulnar claw hand nor in the widespread anaesthesia. Several months later he developed a plantar neurotrophic ulcer and a metatarsal stress fracture.

CASE 2

A 30 year old Vietnamese man arrived in England in 1983. In July 1989, over one month, he developed anaesthetic skin lesions, weakness, and numbness of the hands (first the left, then the right), pain in the fingers, and weight loss. He was seen on several occasions at his local hospital but the diagnosis was not suspected until he saw a physician privately. He was referred for admission to the Skin Hospital.

Examination showed multiple papules, annular lesions, and plaques over the trunk and limbs which were anaesthetic, erythematous, and psoriasiform. Nearly all the nerves of predilection in leprosy were thickened. There was a left ulnar claw hand with considerable intrinsic muscle wasting; the right thumb was weak and there was mild thenar muscle wasting.

Results of skin biopsy of a lesion supported the diagnosis, and triple chemotherapy with rifampicin, dapsone, and clofazimine was promptly started. Despite this he continued to complain of pain in both his hands, and he rapidly developed a right sided

Hospital for Tropical Diseases, London NW1 0PE

Adam S Malin, MRCP, registrar
Michael F R Waters, FRCP, consultant leprologist

Skin Hospital, University of Manchester School of Medicine, Salford M60 9EP
Suhail A Shehade, MRCP, senior registrar
Marguerite M Roberts, FRCP, consultant

Correspondence to:
Dr A Malin.

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