

Comment

Our patient showed a remarkable initial response to high dose intravenous gammaglobulin. The effect on his arthritis was transient, but most of the systemic symptoms were appreciably reduced or absent during the first six months of treatment. A relapse occurred four months after gammaglobulin was stopped, but renewed administration induced the same beneficial effects as before.

The mechanism of action is uncertain. Reactions between idiotypes and anti-idiotypes or blockade of the Fc receptors of the macrophages by the gammaglobulin could explain the increased circulating concentration of immune complexes.¹ We cannot explain the temporarily increased IgM rheumatoid factor concentration.

High dose intravenous gammaglobulin may be useful in treating severe chronic systemic juvenile arthritis. We recommend that a double blind, randomised prospective trial of its effects should be performed.

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Value of a negative cervical smear

When the cost of clinical activity is calculated negative results of investigations (normal results) are usually assumed to be of no value. I tested this assumption for cervical cytology, in which ascribing a zero value to negative smears puts the cost of saving one life at £300 000.¹

Patients, methods, and results

The names and addresses of 100 consecutive women who had recently had a cervical smear reported as being normal were obtained from the computer in the cytology laboratory in Blackburn. Each woman was sent a questionnaire, which first stated that the smear was normal and then asked the following questions: "As the smear turned out to be negative was it a waste of time?" "Do you regard the news that the smear was negative of being of value to you in any way?" "Although there is no question of you being charged for the smear, if you feel that the negative smear was of value to you I would like you to try to express this in terms of money" (choices of 50p, £1, £2, £5, £10, and £20 were given). Questions concerning occupation and age were also asked.

Eighty four replies were received, the women's ages ranging from 17 to 75. Nine women of working age were from social classes I and II, 15 from class III, and 44 from classes IV and V. Eight women could not be classified and eight were retired. Eleven respondents who valued knowing that the smear was negative did not say how much they would be prepared to pay for it. A further four wrote that they would pay "any amount." Of the remaining 69, two valued it at 50p, five at £1, 13 at £2, 24 at £5, six at £10, and 19 at £20. For the 69 women who would have been prepared to pay for the negative smear this gave a mean value of £8.25.

Comment

In evaluating the outcome of medical care a reduction in mortality is measured most easily, but most clinical activity does not prolong life: it is concerned either with giving people information about the state of their health or with interpreting their symptoms. This is sometimes called reassurance. The objective of cervical cytology has been to prevent death from invasive cancer, but publicity about smear testing has made women afraid of the disease. Promotion of health inevitably results in awareness of sickness.

It has been estimated that 40 000 smears are necessary to save one life; this has been called "a grievously poor cost benefit ratio" if 39 999 smears are assumed to have no value.² If each smear costs £5 then the cost of smears alone is £200 000 for each life saved. To this must be added the cost of 200 cone biopsies at about £500 each, bringing the total to £300 000 per life

saved.¹ But if we evaluate cervical screening from the point of view of the woman who is screened then the assumption that a negative smear has no value can be seen to be erroneous. If every negative smear were to have a value greater than £5 (that is, greater than its cost) then the smear that results in a life saved would not have to carry the cost of the 39 999 others but only its own cost of £5. In my study women gave a negative smear a mean value of £8.25, so this criterion has been fulfilled. The service can therefore be considered to be cost effective as its value exceeds its cost.

The one life saved must still carry the cost of 200 cone biopsies, but the cost of this life can now be calculated as £100 005 rather than £300 000. This cost will be reduced further as colposcopy and laser treatment take the place of cone biopsies.

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Which patients with suspected appendicitis should undergo laparoscopy?

Acute appendicitis is difficult to diagnose, and up to 30% of appendicectomies are unnecessary.¹ Laparoscopy is being used increasingly in general surgery, but although it has been used in patients with "questionable appendicitis,"² it is seldom used before appendicectomy. In this study we tried to define the role of laparoscopy in patients with suspected appendicitis.

Patients, methods, and results

All adults admitted to our unit with acute abdominal pain are classified by the admitting surgical registrar as needing an operation, not needing an operation, or "need for an operation uncertain." All patients in whom the need for an operation is uncertain have a laparoscopy after the registrar has decided whether the patient would usually be observed or have an operation if laparoscopy was not available.

We studied all those patients who either underwent appendicectomy or would have done had laparoscopy not been available. We did not include patients correctly classified as not requiring an operation and those who would have been observed if laparoscopy had not been available as these groups do not influence the number of unnecessary appendicectomies. Laparoscopy under general anaesthesia is a routine procedure performed by all the registrars in our unit. The results were analysed by a one or two tailed χ^2 test.

During 30 months 90 patients were admitted with suspected appendicitis. Of these, 50 (28 men and 22 women) had appendicectomies after the initial assessment. The remaining 40 patients (13 men and 27 women) had laparoscopies. There was no significant difference in the incidence of acute appendicitis between the two groups. After laparoscopy, however, only three patients (7.5%) had an unnecessary appendicectomy, compared with 11 (22%) of the patients sent straight to operation; this difference was significant ($p=0.05$). Laparoscopy reduced the number of unnecessary appendicectomies in the 40 patients in whom the diagnosis was in doubt to three (this being the number of operations that would have been performed if laparoscopy had not been available) from a potential figure of 14 ($p<0.01$). The total number of unnecessary operations was reduced to 14 from a potential figure of 25 ($p<0.05$). The diagnostic problem was greater in women: the potential rate of unnecessary appendicectomy (without laparoscopy) was 19/49 (39%) in women compared with 6/41 (15%) in men ($p<0.02$). The three unnecessary appendicectomies after laparoscopy occurred because of a technical failure in one case and because the appendix could not be seen in two cases. If the appendix cannot be seen and no other cause for the symptoms can be identified we proceed to appendicectomy. We do not know of any patient who had only laparoscopy and subsequently needed an appendicectomy.

Comment

The similar incidence of appendicitis in the groups in which the diagnosis was thought to be certain and uncertain shows the diagnostic difficulty. If laparoscopy had not been available in our unit the incidence of unnecessary appendicectomies would have been 28% (25/90), which is within the reported range.¹ Selective use of laparoscopy reduced this to 16% (14/90),

but this remains high. As women pose the greater diagnostic problem we now perform laparoscopy in all of them before appendicectomy. We hope that this will reduce the number of unnecessary operations further.

The rate of complications after removal of a normal appendix is 17%,¹ which is much higher than that after a diagnostic laparoscopy (3%).³ Laparoscopy and other diagnostic aids including computers⁴ and peritoneal aspiration cytology⁵ provide the opportunity to reduce the high rate of unnecessary appendicectomies.

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Does cardioversion of atrial fibrillation result in myocardial damage?

There is concern that cardioversion of atrial fibrillation to sinus rhythm may damage the heart.¹ To investigate this possibility we examined patients undergoing elective cardioversion. Creatine kinase and its more specific MB isoenzyme cannot be relied on as markers of myocardial damage because of technical limitations in their measurement; thus we used technetium-99m stannous pyrophosphate, a sensitive and specific marker of myocardial damage, as an additional procedure.²

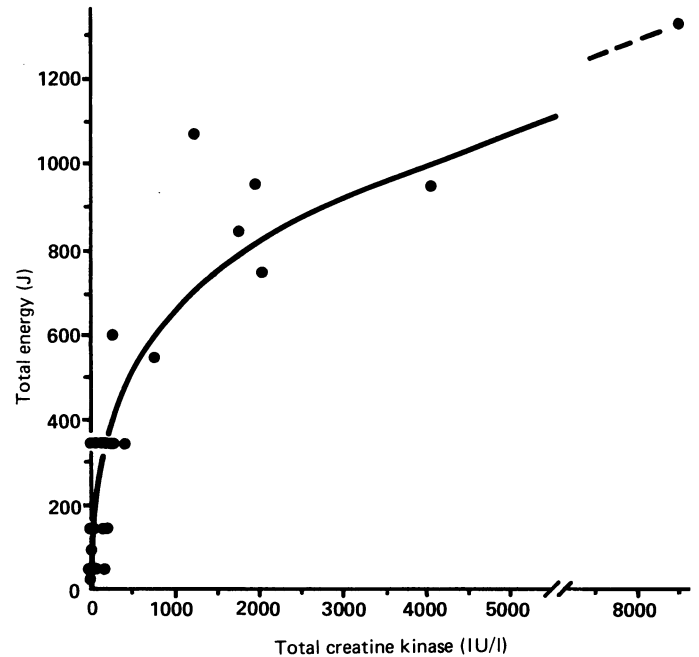
Patients, methods, and results

We examined 25 patients aged 33-78 (mean 55.9). All were treated with anticoagulant drugs before and for six weeks after cardioversion to prevent thromboembolic complications. Samples of plasma were obtained before cardioversion and every six hours thereafter for 36 hours and assayed for activity of total creatine kinase and its MB isoenzyme. ^{99m}Tc stannous pyrophosphate scanning was performed before and 36 hours after cardioversion, planar views and tomographic scans being obtained. Twenty one of the patients were converted to sinus rhythm; 16 of these 21 remained in sinus rhythm at follow up three months to two years later.

The scans did not show any myocardial uptake, but uptake was seen in the anterior chest wall in five of six patients who had received a high energy shock (400 J). Baseline activity of creatine kinase ranged from 8 to 176 U/l (mean 36 U/l), normal range <75 U/l, and baseline activity of the MB isoenzyme was below the upper limit of the normal range in all patients. Peak activity of creatine kinase ranged from 17 to 8586 U/l (mean 917 U/l); peak activity of the MB isoenzyme was increased in six patients but appreciably so in only two (at 34 and 102 U/l), in whom peak activity of total creatine kinase was high (1810-8586 U/l respectively).

Comment

Experiments on animals have shown myocardial damage secondary to defibrillation.³ In humans, although activity of various enzymes related to cardiac function has been shown to increase after cardioversion, that of the more specific MB isoenzyme of creatine kinase has not.¹ Several problems arise in interpreting MB isoenzyme activity. Firstly, the reference range applies to ambulant patients without chest trauma. Secondly, in electrophoresis the error of measurement of activity of the MB isoenzyme increases as total creatine kinase activity and the percentage of MB



Total peak creatine kinase and cumulative energy used.

isoenzyme decrease.⁴ This probably explains why in four patients there was a slight increase in peak activity of MB isoenzyme associated with a moderate increase in total creatine kinase activity; although this may have indicated slight myocardial damage, this is unlikely.

A third problem is that the MB isoenzyme of creatine kinase is not specific for myocardial damage. Skeletal muscle contains 3-5% of this isoenzyme and myocardial muscle 14-20%.⁵ Two patients had fairly high peak activity of MB isoenzyme associated with a substantial rise in total creatine kinase activity, most probably as a result of damage to skeletal muscle due to the high energies used. This is substantiated by the fact that in both patients uptake of ^{99m}Tc stannous pyrophosphate was seen in the chest wall but not the myocardium. ^{99m}Tc stannous pyrophosphate scanning, especially when tomographic imaging is used, clearly distinguishes myocardial damage from damage to the chest wall. A release of over 100 U/l of the MB isoenzyme of creatine kinase represents necrosis of over 1 g of myocardial tissue and should be well within the imaging threshold of the scans. Slight chest discomfort in those patients with soft tissue damage was the only side effect noted.

As we did not find any conclusive evidence of myocardial damage we conclude that patients with atrial fibrillation should be considered for cardioversion.

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