and clinicoserological evaluation. Mean ages of donors and partners were: group 1, 52.6 and 51.9 years; group 2, 48.0 and 47.4 years; and group 3, 46.3 and 46.8 years.

All serum samples tested for alanine aminotransferase activity, hepatitis B surface antigen, and anti-HIV were screened with Abbott hepatitis C virus enzyme immunoassay, second generation kit. In group 1, 10 partners (six men) tested anti-HCV positive, and in group 2 three partners (two men) tested positive. Among the partners of controls one woman tested anti-HCV positive (table). (This last result (1.5%) is

Prevalence of anti-HCV positive subjects in groups 1-4*

	1	1a	1b	2	3	4
No anti-HCV negative	33	22	11	40	67	23
No (%) anti-HCV positive	10 (23.3)	7 (24.1)	3 (21.4)	3 (7.0)	1 (1.5)	0
Total	43	29	14	43	68	23

χ^2 Test (three degrees of freedom) 19.8; $p < 0.0005$.
*Group 1: heterosexual partners of anti-HCV positive blood donors with chronic liver disease (subset 1a) or previously abnormal alanine aminotransferase activities (subset 1b); group 2: heterosexual partners of anti-HCV positive donors without previously known abnormal alanine aminotransferase activities; group 3: controls (heterosexual partners of random anti-HCV negative donors); group 4: children or other family members of anti-HCV positive subjects.

consistent with findings in Piedmont among people of the same age range. Serum samples from the 14 partners positive for anti-HCV were tested with a recombinant immunoblot assay (Ortho) capable of detecting antibodies to antigens 5-1-1, c-100-3, c22-3, and c33c. All gave positive results with at least two antigens. Identical antigenic specificities were observed in seven of the 13 couples in whom both partners were anti-HCV positive.

Among 23 children or other family members of anti-HCV positive subjects (group 4; mean age

14.3 years) none (15 in group 1 families, eight in group 2) tested positive (table).

Comment

These results suggest that heterosexual intercourse may be an important route of transmission of HCV. The risk of virus transmission when a partner in a couple without other risk factors is anti-HCV positive may increase with a worsening liver condition. This risk is high when patients have hepatitis C virus related chronic hepatitis whereas in subjects without biochemical evidence of liver disease the risk seems three times smaller—though nearly five times greater than in controls.

Serum samples were not tested with polymerase chain reaction, the subjects being distinguished only by clinical and biochemical data. Nevertheless, we suggest that our group 2 corresponded to patients (believed to be nearly half of cases) in whom hepatitis C does not evolve as a chronic condition.

More information is needed about the relation between the presence of anti-HCV and infectivity as well as infectivity in different phases of HCV infection.

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2 Alter MJ, Coleman PJ, Alexander WJ, Kramer E, Miller JK, Mandel E, et al. Importance of heterosexual activity in the transmission of hepatitis B and non-A, non-B hepatitis. *JAMA* 1989;262:1201-5.
3 Tedder RS, Gilson RJC, Briggs M, Loveday C, Cameron CH, Garson JA, et al. Hepatitis C virus: evidence for sexual transmission. *BMJ* 1991;302:1299-302.
4 Kiyosawa K, Sodeyama T, Tanaka E, Shimizu S, Furuta S, Miyazaki Y, et al. Intrafamilial transmission of hepatitis C virus in Japan. *J Med Virol* 1991;33:114-6.
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(Accepted 8 September 1992)

Acute compartment syndromes resulting from anticoagulant treatment

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BMJ 1992;305:1474-5

Anticoagulants are commonly used both prophylactically and to treat venous thrombosis. Because such treatment increases a patient's susceptibility to haemorrhage comparatively minor trauma may result in disproportionate intracompartmental bleeding and the development of a compartment syndrome. This requires prompt diagnosis and rapid treatment to avert a potential disaster. Compartment syndromes have been reported in association with anticoagulants, but always after arterial puncture for blood gas analysis.¹⁻⁴ To heighten awareness of this potential complication we report seven cases of compartment syndrome after minor trauma in patients who received anticoagulant treatment.

Case reports

The table gives details of the seven cases. Four patients were taking anticoagulants when the minor trauma occurred, and three were given them after the trauma occurred because venous thrombosis was diagnosed erroneously. In only one case was the dosage of anticoagulant above the normal therapeutic range for

the particular clinical indication. In the six cases in which compartmental pressures were measured the slit catheter technique was used as described by Barnes et al.⁵

Four of the seven patients underwent urgent fasciotomy, and only one had permanent postoperative nerve damage and muscle necrosis. In this case compartmental pressure was not measured until three days after the trauma. In case 1 no action was taken because the compartmental pressure was not particularly high (58 mm Hg) and was falling. In case 5 blood flowed freely from within the compartment when a catheter was inserted to measure the pressure; aspiration of 65 ml blood reduced the pressure to normal so that surgery was avoided. In case 7 the patient presented 12 days after injury for a surgical opinion. Foot drop had been established for several days and it was considered too late for fasciotomy.

All the injuries were minor, either being pulled muscles or resulting from everyday impacts, but were sufficiently severe for the patients to present at the accident and emergency department. None of these patients suffered the type of fracture or major soft tissue injury that is normally associated with an acute compartment syndrome.

Comment

The complication of anticoagulant treatment described is not common, but the disabling effects of untreated or late treated compartment syndrome justify vigilance at all times by the attendant clinician.

Case No	Age and sex	Anticoagulant and duration	Reason for anticoagulant	Trauma	Compartment	Symptoms	Compartmental pressure (mm Hg)	Time to surgical presentation	Surgery	Outcome
1	46M	Warfarin, 5 years	Aortic valve replaced	Pulled thigh muscle on alighting from car	Anterior thigh	Pain, swelling, bruising	58	2 Days	No	Complete recovery
2	61M	Warfarin, 3 years	Atrial fibrillation, thromboembolism	Minor impact, upper right arm	Flexor forearm	Pain, swelling, altered sensation, pain on passive stretch, paraesthesia of median nerve	138	7 Days	Yes	Gradual complete recovery
3	24M	Warfarin, 8 years	Aortic valve replaced	Rugby tackle, left thigh	Anterior thigh	Pain, swelling, tenderness, paraesthesia, altered sensation	88	12 Hours	Yes	Complete recovery
4	71M	Heparin, immediate	?Deep vein thrombosis	Pulled muscle in left calf while walking	Deep posterior calf	Pain, swelling, tenderness, pain on passive stretch, foot drop	86* 173†	4 Days	Yes	Permanent nerve damage, muscle necrosis
5	22M	Heparin, immediate	?Deep vein thrombosis	Minor impact, right calf	Superficial posterior calf	Pain, swelling, pain on passive stretch	78	6 Days	No	Complete recovery
6	58F	Warfarin, 5 years	Aortobifemoral graft	Undisplaced fractured fibula	Anterior calf	Pain, swelling	32† 55*	Same day	Yes	Complete recovery
7	43M	Heparin, immediate	?Deep vein thrombosis	Pulled muscle in right leg pushing car	Anterior calf	Pain, swelling, foot drop	ND	12 Days	No	Permanent nerve damage

ND=Not done. *Deep pulse. †Anterior.

Prescription of anticoagulants must be appropriate and doses monitored carefully.

We do not know whether, in the three patients treated for suspected deep vein thrombosis, the inappropriate administration of heparin caused slightly damaged muscles to bleed excessively, thereby resulting in raised intracompartmental pressure. Likewise we do not know whether the raised intracompartmental pressure resulted in subsequent venous thrombosis within the compartments. In such cases it is vital to confirm deep vein thrombosis before prescribing anticoagulants.

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2 Luce EA, Futrell JW, Wilgis EFS. Compression neuropathy following brachial arterial puncture in anticoagulated patients. *J Trauma* 1976;160:717-21.

3 Macon WL, Futrell JW. Median-nerve neuropathy after percutaneous puncture in the brachial artery in patients receiving anticoagulants. *N Engl J Med* 1973;288:1396.

4 Neviaser RJ, Adams JP, May GI. Complications of arterial puncture in anticoagulated patients. *J Bone Joint Surg [Am]* 1976;58:218-21.

5 Barnes MR, Gibson MJ, Scott J, Bentley S, Allen MJ. A technique for the long term measurement of intra-compartmental pressure in the lower leg. *J Biomed Eng* 1985;7:35-9.

(Accepted 21 September 1992)

ONE HUNDRED YEARS AGO

SCIENCE, LETTERS, AND EDUCATION

The Professor of Latin at University College has printed the brave plea for disinterested learning which he made at the opening of the winter session.¹

It is commonly asserted, he says, on behalf of "science" (by which term he seems to mean the positive sciences) that her end is utility; on behalf of literature that her end is the transformation of the human mind and the cultivation of the love of beauty; but, he argues, if science be pursued only for the more material advantages—if astronomy be good only in so far as it is of assistance in navigation, chemistry only for the discovery of dyes or manures, and so forth—then these sciences need only be studied within such remunerative areas. As to the "classics" (by which term he seems to mean certain Greek writers of the 5th and certain Latin writers of the 1st century B.C.), he denies that their study does transform or beautify its devotees, and he makes some quotations to prove that they write in as slovenly a fashion and express thoughts as obscurely as other people. The "classics," he contends, do not give beauty to the soul, but rather furnish the key to a store of ornaments of speech, which have been very fashionable and are not quite out of fashion yet. The capacity for culture is a rare and peculiar quality of individuals; it can find sufficient nourishment in a very scanty measure of classical reading, and no profundity of scholarship can produce it.

The purposes of science and letters would seem then to be other than utility or beauty; and Professor Housman concludes that the attainment of knowledge satisfies a hunger common to all men, which satisfaction, being the most permanent of pleasures, is a good in itself and the only abiding good. As Virchow said, in the Berlin address from which we quoted the other day, man is born and grows up a creature keen of inquiry, and his greatest

happiness consists in the reading of the endless storybook of Nature.

Learning, then, is its own end and its own reward, and although technical schools must exist for purposes of immediate utility, yet this kind of teaching is to be regarded as but provisional, and far short of the standard of a university, where learning shall be pursued for its own, that is, for happiness' sake.

Now if Professor Housman be right in his main contention, his argument is defective in more than one part. Putting aside certain crudities of opinion in subordinate matters, it is a mistake to suppose that the physical sciences can be quarried with parsimony of labour for practical purposes. "Science" is a jealous mistress, and will give her favours—her secret and unexpected favours—only to him whose love and pursuit of her are passionate and singlehearted. Science will have disinterested devotion, or none.

Again, is it true that the satisfaction of curiosity is in itself the joy and end of study? Aristotle did, no doubt, as did Virchow, speak of this delight of the spirit in its own energy; but, in quoting Aristotle, Professor Housman, like many other writers, as it seems to us, misses his moral earnestness. The spur to our energies is the desire for unseen good; we desire an end, not a process only. To busy one's self *in vacuo* is no noble emotion. Aristotle says the soul delights in exercising its energies ἐν βίῳ τελείῳ, engaged or versed in a life not formally complete, but constantly fulfilling its purposes, ever realising anew the highest forms consistent with the state of the agent. There is an ethical and philosophical part in the matter which Professor Housman seems to neglect. (*BMJ* 1892;iii:1353.)

¹ Introductory Lecture delivered in University College on October 3rd, 1892. By A. E. Housman, Professor of Latin. Cambridge, 1892.