fibronectin concentrations will not contrib-
ute to the differential diagnosis in complica-
ted clinical settings where definite proof by
positive CSF cytology should be sought. How-
ever, a few cancer patients in our study had a
completely normal routine CSF exami-
nation including cytology, glucose, lactate,
albumin, IgG, and IgM, but they had increased
CSF fibronectin and later turned out to have
leptomeningeal metastases, as shown by cytology. Therefore, determination of CSF fibronectin may be a useful diagnostic
and monitoring tool in the staging and follow-
up of patients with disseminated cancer.

M WELLER
National Institutes of Health,
Clinical Neuroscience Branch,
Bethesda, MD USA

Use of computers in anticoagulant
clinics

The guidelines on oral anticoagulation pub-
lished by the British Society for Haematology
(BSH) acknowledged that computers may
have a role in both the analysis of therapeutic
quality control and in the clerical support of
an anticoagulant clinic.1 Their use in the
production of dose schedules for individual
patients was not recommended until reliable
patient database programmes had been de-
veloped.

Until August 1990 our anticoagulant clinic
had been performed by either a consultant
haematologist or a medical senior house
officer. Each patient had been allocated a
target International Normalised Ratio (INR)
range according to the BSH guidelines. In an
attempt to improve our anticoagulant control
we introduced a previously reported com-
puter programme for determining the dose of
oral anticoagulant.

Results over the past 12 months indicate
that the INRs have shown a consistent improve-
ment. The figure shows that the mean
INR for each patient group has pro-
gressively moved nearer to the mid point of
the therapeutic ranges—3-75 for the range
3-0-4-5 and 2-5 for the range 2-0-3-0, there
being too few patients in the range 2-0-2-5 to
analyse. The percentage of patients within the
therapeutic range each month for these two
groups has increased from 50% to 70% and
from 48% to 65%, respectively.

As a result of the improved anticoagulant
control the average recall between visits has
also increased from 26 to 36 days and from
21 to 33 days for the two groups. The results
have been achieved without any apparent
increased risk of serious bleeding complica-
tions. All episodes of bleeding have been
recorded on each patient’s computer record
which allows the number of such episodes to
be monitored.

The use of this computer program for
determining the dose of oral anticoagulants
has improved our therapeutic control. The
clinic is now run by a staff pharmacist
acting under the direction of a consultant
haematologist, thus freeing up medical
time.

Among other benefits which have ensued
is the improved advice given to new patients,
which is part of the program. This part of
the program consists of a series of questions
for all new patients. As directed by the
computer, the pharmacist will question the
patients to ensure that they know why they
have been given warfarin, the dose and
colour of their tablets, the side effects of
warfarin together with which drugs should be
avoided. This ensures that each patient is
fully counselled regarding their anticoagu-
lant. This program will allow comparisons of
performance to be made between centres.

L KENT
MJ GALLOWAY
Department of Haematology
General Hospital
Bishop Auckland
Co Durham DL14 6AD
2 Ryan PJ, Gilbert M, Rose PE. Computer
control of anticoagulant dose for therapeutic

Audit of necropsies in a British district
general hospital

In response to the recent article about audit
of necropsies1 we were prompted to carry out
a retrospective study of the past 200 adult
necropsies performed at the Mayday Hospi-

Our criteria for grading diagnostic dis-
crepancies between the clinical cause of
death and the post mortem findings differed
from Harris and Blundell’s study, as we used
a single category for additional major pathol-
ogy without “feed-back on tests” group.

The data were derived from the clinical
and necropsy diagnoses obtained from post
mortem request forms and necropsy report.
The diagnoses were then independently
graded by three histopathologists (TPM,
MJC, and SMT) using up to three of the
criteria given below. The gradings were then
compared and only those agreed by at least
two of the pathologists were accepted for
each case. Results were later presented at
the hospital clinical audit meeting (table).

The feedback from our study indicated
that necropsies have a central role in clinical
audit, yet despite this the necropsy rate
continues to fall in this era of audit.

Our study differs from that of Harris and
Blundell in several ways. Both studies never-
evertheless emphasise the significant discrep-
ancy between clinical and necropsy diagnosis. This
discrepancy is sufficiently high to question
the use of mortality statistics as derived from
death certificates in the distribution of medi-
cal resources.

Many clinicians still question the relevance
and validity of necropsy results. Our study,
however, shows that most necropsies provide
considerable information regarding therapy,
terminal pathological process as well as
revealing important findings that may not
directly contribute to the cause of death.

The feedback from our study indicated
that a summary of the main post mortem
findings was desired by the clinicians even
more than a full necropsy report. Despite the
lack of resources in many hospitals it would
not necessarily, as was previously thought,
be impossible to produce a summary of find-
ings and a concise necropsy report which
would at least in part fulfil the Intercollegiate
Working Party’s recommenda-
tions on necropsy.

In conclusion, necropsies must be con-
idered as an essential part of clinical man-
agement and audit. Therefore, we actively
support the use of necropsy and encourage
our clinical colleagues in this matter. We
also feel that additional resources—for exam-
ple secretarial and technical personnel—should
be provided so that the underresourced
pathology laboratories can provide the quan-
tity and quality of necropsies as laid out by
the Intercollegiate Working Party recom-
endations.

TP MEARS
MJ COPPEN
SM THOMAS
Mayday University Hospital,
Thatcham Health
Surrey CR4 7YE

<table>
<thead>
<tr>
<th>Findings</th>
<th>Harris and Blundell study</th>
<th>Mayday hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major discrepancy in diagnosis</td>
<td>13%</td>
<td>32%</td>
</tr>
<tr>
<td>Major unsuspected diagnosis</td>
<td>30%</td>
<td>46%</td>
</tr>
<tr>
<td>Important clarification in diagnosis</td>
<td>63%</td>
<td>38%</td>
</tr>
<tr>
<td>Confirms presence of main diagnosis</td>
<td>86%</td>
<td>60%</td>
</tr>
<tr>
<td>No contribution</td>
<td>2%</td>
<td>41%</td>
</tr>
<tr>
<td>Major additional pathology</td>
<td>51%</td>
<td>47%</td>
</tr>
</tbody>
</table>

2 Report of the Joint Working Party of the Royal
College of Pathologists, the Royal College of
Physicians of London and the Royal College
of Surgeons of England. The autopsy and

1 Torre D, Zeroli C, Isi M, Fiori GP, Ferraro G,
Speranza F. Cerebrospinal fluid concentra-
tion of fibronectin in meningitis. J Clin Pathol
2 Wellner M, Sommer N, Stevens A, Wietzbrodt H.
Increased intrathecal synthesis of fibronectin
in bacterial and carcinomatous meningitis.
3 Wellner M, Stevens A, Sommer N, Wietzbrodt H,
Dichgans J. Cerebrospinal fluid interleukins,
immunoglobulins, and fibronectin in neuro-
Use of computers in anticoagulant clinics.

L Kent and M J Galloway

doi: 10.1136/jcp.45.6.549-a

Updated information and services can be found at:
http://jcp.bmj.com/content/45/6/549.1.citation

**Email alerting service**
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

**Notes**

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/