Sensitivities, specificities, predictive values, and gain of apoE genotyping for the detection of an E4 allele in different series of patients with probable Alzheimer’s disease with neuropathological confirmation

<table>
<thead>
<tr>
<th>Source</th>
<th>n</th>
<th>Patients</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Prior probability</th>
<th>Positive predictive value</th>
<th>apoE gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>CERAD</td>
<td>134</td>
<td>Prob AD</td>
<td>0.76</td>
<td>0.94</td>
<td>0.87</td>
<td>0.99</td>
<td>0.12</td>
</tr>
<tr>
<td>Duke</td>
<td>67</td>
<td>Prob AD</td>
<td>0.75</td>
<td>1.00</td>
<td>0.85</td>
<td>1.00</td>
<td>0.15</td>
</tr>
<tr>
<td>Perth</td>
<td>66</td>
<td>Prob AD</td>
<td>0.48</td>
<td>1.00</td>
<td>0.79</td>
<td>1.00</td>
<td>0.21</td>
</tr>
<tr>
<td>OPTIMA</td>
<td>37</td>
<td>Prob AD</td>
<td>0.78</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
</tr>
<tr>
<td>OPTIMA</td>
<td>52</td>
<td>Poss AD</td>
<td>0.70</td>
<td>0.60</td>
<td>0.69</td>
<td>0.81</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Data are taken from the same sources as Roses and Saunders’ table 1.

disease, and (b) what is the increase of prob-
ability provided by apoE genotyping? The table
shows that in the series indicated by Roses and
Saunders (see their table 1), the prior prob-
ability of patients with probable Alzheimer’s
disease ranges from 79 to 100%, and that the
mean of apoE genotyping is between 0 and 21%.
Furthermore, the gain of apoE genotyping in the
group of patients in which additional information
might be more useful—that is, possible Alzheimer’s
disease is not higher (12%). Therefore, the higher the
accuracy of the clinical diagnosis of probable Alzheimer’s
disease, the lower the gain from apoE geno-
typing.

Another situation in which apoE might
give additional diagnostic information is that
of epidemiological studies (for example,
prevalence studies or secondary prevention
interventions on Alzheimer’s disease in the
community). In this case, apoE genotyping
might increase Alzheimer’s specificity of screening
tools—that is, decrease the proportion of false
positives. We have recently estimated that
the false positive rate of the mini state
examination (MMSE) as a screening test for Alzheimer’s
disease in the community would decrease from 13 to 7% by
adding information on apoE genotype.4
This, in a hypothetical study carried out in a
community of 1 000 000 with 7500 patients
with Alzheimer’s disease, with a sensitivity
set at 99% translates into a decrease of false
positive from 19 000 to 9500. The conse-
cquent cost savings might be relevant.

We think that the issue of the diagnostic
gain is the central one in the cost/benefit
analysis that must precede any diagnostic
procedure. As for any medical service, the
task of researchers is to accurately estimate
cost and benefits. The individual provider of
the service or society as a whole will then
be able to judge whether or not the benefits
are worth the cost.

GIOVANNI B FRISONI
ANGELO BIANCHETTI
MARKO TRABUCCHI
Alzheimer’s Disease Unit,
Instituto S. Cuore-FBF
and Genetic Research Center,
via Romanno, 125122,
Brescia, Italy

Clinical epilepsy

We are very grateful to Professor David
Chadwick for his complimentary and enthusi-
astic review of our book Clinical epilepsy
in this journal (J Neurol Neurosurg Psychiatry
1996;61:557). We must, however, correct
one error. The review suggests that we omit
a discussion of the syndrome of mesial tem-
poral lobe epilepsy. This is discussed in
section 2.4.1 (pp 44-45).

BOOK REVIEWS

All titles reviewed here are available from
the BMJ Bookshop, PO Box 295, London
WC1H 9TE. Prices include postage in the
United Kingdom and for members of the
British Forces Overseas, but overseas
consumers should add £2 per item for
postage and packing. Payment can be made
by cheque in sterling drawn on a United
Kingdom bank, or by credit card (Amex,
Diners Club, Visa or American Express)
stating card number, expiry date, and your
full name.

Edited by C P WARLOW et al (Pp 664;
£99-50). Published by Blackwell Science,

There was a time when it was de rigueur
to start the review of a book on stroke with
a preamble regretting the Cinderella status
of stroke in the interests of neurologists.
This was always a peculiarly British phenom-
omenon and this book marks the triumphant
rise of Cinderella’s slipper by the Prince, so
as stroke driving in the United Kingdom
is concerned. Clinical medicine should
always involve the application of science
to the management of disease, science being
a system of knowledge based on the evidence
of observation and experiment, hence the
tautological nature of the expression “eviden-
tialism” which has been written by leading
leagues have produced a book which is
certainly the best book ever on stroke and
must rate as one of the best of a new genre
in medical publishing, a properly scientific
treatise that is also of practical value in
patient care. There is no statement whose
evidential status is not carefully docu-
mented. The regrettable tradition of ex-
cathedra clinical dictates based on a mixture
of guess work and blind tradition which is
still so prevalent is nowhere to be seen in
this book. Even the first chapter on the
history of our knowledge of stroke displays
an intellectual maturity (I suspect from van
Gijn) not often seen in doctors writing about
history. This is a chapter properly discussing