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TABLE 1—*ASTRID spreadsheet input table of the STR profile shared by known and unknown individuals.*

STR Profile	Allele 1	Allele 2
CSF1PO	14	9
TPOX	12	12
TH01	7	7

TABLE 2—*ASTRID spreadsheet output table of the group membership probabilities corresponding to the STR profile in Table 1.*

	Posterior probabilities
Ashkenazi	0.000
Moroccan	0.000
Yemeni	0.000
Ethiopian	0.004
Known	0.996

TABLE 3—*Within-locus allele relative identifying potential, decreasing downward.*

LOCI		
CSF1PO Alleles	TPOX Alleles	THO
14	13	10
7	7	9.3
8	12	8
9	10	7
13	11	9
10	9	6
12	8	
11		

I argue that a thoroughly sub-threshold $P[U{=}K]$ is a very useful result with regard to any suspect, because it forces investigators to look, not only for other, potentially more fruitful evidence, but also for other suspects. A mismatch, of course, also strongly tends to exonerate the suspect completely.

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Commentary on George JR, Davis GG. Comparison of antiepileptic drug levels in different cases of sudden death. J Forensic Sci 1998;43:595–603.

Sir:

Various studies indicate that sudden unexplained death syndrome (SUDS) of patients with epilepsy is associated with the occurrence of seizures as well as with undectable or "subtherapeutic" serum levels of antiepileptic drugs (AEDs). George and Davis reported on postmortem serum concentrations of carbamazepine (CBZ), phenobarbital (PB), phenytoin (PHT), valproic acid (VPA), and felbamate (FBM) of 115 epileptic patients (1). Subtherapeutic AED serum levels were found in 69% of 52 persons with SUDS, in 75% of eight cases where a seizure precipitated an accident causing death, and in 34% of 44 control patients, for whom death was considered unrelated to epilepsy (the remaining 11 cases were unclassified). The patients whose death was directly related to the epilepsies exhibited a significantly greater incidence of subtherapeutic AED levels than the control group. But, in accordance to a recent experimental study on rabbits concerning CBZ and PHT (2) also patients with epilepsy showed a significant decrease in CBZ, PB and PHT serum concentrations shortly after death (3). The ratio of premortem to postmortem serum levels was 1.65 (95% confidence interval 1.56–1.74) for PB, 1.34 (1.10–1.57) for PHT and 1.16 (1.08–1.24) for CBZ (3). Moreover, it cannot be excluded that VPA and FBM serum concentrations also decrease after death, but data are still lacking. If the postmortem decrease of AED serum levels is not considered as in the case of the cited study (1), the calculated portion of subtherapeutic levels will be overestimated. On the other side the portion of patients with "therapeutic" or "toxic" levels will be underestimated. Nevertheless, we assume that in the study of George and Davis (1) the difference in subtherapeutic serum concentrations between the two groups (epilepsy-related and epilepsy-unrelated causes of death) remains significant even if the postmortem decrease of serum levels would be considered.

However, it should be mentioned that the comparison of pre- and postmortem concentrations with so-called therapeutic ranges is problematic for several reasons. The recommendations for the therapeutic range of serum levels are not uniform. It should be kept in mind that the individual therapeutic serum level may differ from the recommended therapeutic range and that the evaluation of serum levels should primarily depend on the clinical condition of the patient and not on therapeutic ranges. Furthermore, the measured pre- and postmortem AED serum concentrations depend on the analytical method.

Our critical remarks may also be valid for older and recently published studies (e.g., the study of Kloster & Engelskjøn (4)) on postmortally determined serum concentrations of AEDs and in respect to suspected non-compliance in patients with SUDS.

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Author's Response

Sir:

I thank Drs. May and Schnabel for drawing our attention to work recently published in the neurological literature that has important ramifications for the practice of forensic pathology. Drs. May and Schnabel go on to distill the practical point of interpreting postmortem anticonvulsant levels by saying that "It should be kept in mind that the individual therapeutic serum level may differ from the recommended therapeutic range and that the evaluation of serum levels should primarily depend on the clinical condition of the patient and not on the therapeutic ranges." We had hoped to make just this point in our article in the final paragraph of the Discussion. However the point is made, it is an important one. Ideally, a forensic pathologist will be able to discuss a specific case with the decedent's personal physician, thereby learning what was an effective therapeutic concentration in that particular individual.

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Commentary on the American Board of Criminalistics (ABC) Certification Process

Sir:

In the ABC Certification News (Volume 6, Issue 1, Summer 1999), we were notified that another route of certification was being implemented for Technical Specialists in Drug Analysis and Molecular Biology. The following letter was sent to the ABC Board of Directors & Examinations Committee on August 06, 1999. The opinions expressed in the letter may be of interest to the forensic science community.

Re: Technical Specialists—Drug Analysis, Molecular Biology

The American Board of Criminalistics (ABC) is a professional organization that "was formed by a majority of the nation's forensic science associations to establish a certification process." (1). This certification is defined as "a voluntary process of peer review by which a practitioner is recognized for attaining the professional qualifications necessary to practice in one or more disciplines of criminalistics" (1). Nowhere in the purpose or definition of the certification process is there mention of certifying individuals whose nature of work is "Drug Analysis" or "Molecular Biology" in the absence of demonstration of competency in criminalistics. The ABC certification process does not include professional certification of "Technical Specialist—Drug Analysis" and "Technical Specialist—Molecular Biology."

As mentioned in the American Board of Criminalistics Certification Program document, the California Association of Criminalists (CAC) developed a program, which "recognized that the changing nature of the work required increasing specialization, but maintained a strong commitment to a solid foundation in the full range of criminalistics" (2). Since the incorporation of the American Board of Criminalistics in 1989, this organization "has seen basic knowledge of other forensic disciplines, as measured by a General Knowledge Examination, as essential to a certification program."

These statements indicate that a knowledge of criminalistics of a certified member is both important and essential. In fact, there was a need for the testing of the candidate's knowledge to be standardized. As such, the "ABC was incorporated in 1989 in response to a need perceived by many criminalists for a national certification program."

With the development of new scientific techniques and procedures for physical evidence analysis, there must necessarily be changes in the operation of the laboratories where the analyses are performed. The trend in most forensic laboratories is toward increased specialization and away from the generalist or "holistic" approach to problem solving.

Admittedly, increased specialization necessitates that forensic laboratories hire individuals with precisely defined skills. Many of these individuals do not have a sufficient understanding of the basic principles of criminalistics. Often, however, laboratories confer the title of "criminalist" upon these technical specialists. A technical specialist does not become a criminalist by virtue of a title or by working in a forensic laboratory but rather by the knowledge, skills, and abilities (KSA's) needed to be a criminalist. Criminalistics is "concerned with the recognition, identification, individualization, and evaluation of physical evidence using the methods of the natural sciences in matters of legal significance" (3). Thus, it is a science that draws on many disciplines. Technical specialists who work within a forensic environment can be exposed to many different disciplines during physical evidence analysis. Regardless of the specialization that practitioners engage in, the ABC "supports the philosophy that forensic scientists must have this broad understanding of many aspects of forensic science"(2). It is through the General Knowledge Examination (GKE) that this broad understanding is tested. To further this argument, the Certification Program Structure embodies a four concept approach whose second concept is "a general understanding of a field is needed before specializing." The GKE tests four subject areas, of which not any one subject area is more significant than another (4).

In a Certification News publication (Volume 6, Issue 1, Summer 1999), we were astounded to find that the ABC is assuming the responsibility of certification of Technical Specialists. The newsletter states that "these practitioners find themselves serving as specialists" and "many of these specialists may have little or no formal interactions with case investigators, and/or the nature of the samples provided for examination"(5). Paradoxically, the article also mentions "that all practitioners in any laboratory with the name "forensic" in its title should be expected to pursue opportunities to gain a well-rounded competence in understanding and managing multidisciplinary casework"(5).