

CLINICAL SIGNS OF DRUG USE IN DRIVERS, COMPARISON BETWEEN THE DIFFERENT TEST BATTERIES, THEIR INTEREST, THEIR LIMITS AND THEIR FUTURE EVOLUTION

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If alcohol consumption, during post decades, represented the main cause of impairment in drivers, consumption of other psychoactive substances become, since twenty years, an increasing cause of drivers' impairment and of road accidents.

If some countries (USA, Scandinavian Countries) have implemented procedures for clinical evaluation since several years, many other countries still focus on detection of alcohol in drivers.

The countries which use clinical procedures of detection of impairment, are mainly the countries where general laws forbid to proceed to biological detections in the absence of clinical signs of impairment (USA, Germany, Scandinavian Countries).

On the other side, the countries where biological detection doesn't need any suspicion of alcohol consumption have slightly left their traditional procedures of behavioral evaluation, this is due to the increasing use of alcohol detection in the breath.

If the biological evidence is an important step in the countries using clinical evaluation procedures, this step is not always required for justice procedures.

On another hand, in the countries where the biological evidence is now the main one, only this biological evidence is considered by the justice even if the penal code still keeps the notion of impairment without alcohol detection, notion less and less used by justice courts.

In the same time, we can observe that different strategies have been implemented in the countries using widely impairment evaluations.

In the first step of the impairment evaluation in drivers always rest on field policing on a second step, different approaches are used depending of the countries.

Those different strategies also concern the circumstances of impairment evaluations :

- random tests
- fatal accidents
- all accidents
- violation of traffic rules

- suspicion of impairment

- **USA**, since 15 years, have developed a procedure based on expert policing, especially trained, in charge of leading a complete evaluation of the driver. This program, named D.R.E. (Drug Recognition Expertise) rests on the training of a limited number of expert policemen. This specialized training is completed by the requirement of a yearly recertification and of a minimum average of evaluations every year. Practically, the field policeman facing driver suspected of impairment, ask for an examination with the DRE policeman who will proceed to a standardised battery of clinical tests.
- **Scandinavian Countries, Germany and Belgium** have different procedures. On a first step, the field policeman has only to establish, with simple behavioral tests (not always standardised) if there is or not a reasonable suspicion of impairment. If this suspicion exists, a biological sample (generally blood) is collected to be used in the justice procedure.
- **In other countries, like France**, which have no obligation to lead a clinical evaluation in drivers, and which have no obligation of "reasonable suspicion". The detection is only focused on the determination of an alcohol level using a detection in breath (alcohol test) followed by a confirmation which is the only evidence used by justice courts.

Police procedures in countries like France, theoretically still includes a behavioral evaluation by the field policeman and another one by a medical doctor requested to collect the blood sample.

Those two evaluations, using specific files are not anymore used in many places for two reasons :

- the first one is that driving licence suspensions are actually based on the breath alcohol level or on the blood alcohol level, the duration of the suspension and the sanction are not linked with the impairment.
- the second one is that the clinical evaluation is only led by a doctor in case of blood sampling.

The use of breath analysers exempts the policeman of requiring a medical doctor. If this evolution has no serious consequences in the field of alcohol related problems, it needs to be called in question if we wish to take into account the other psychoactive substances.

This discussion of current procedures based only on biological detection is necessary for two reasons :

- compared to alcohol, which pharmacokinetic characteristics are simple, and with a good correlation between impairment and blood level, the other psychoactive substances have different clinical effects partially correlated with blood level, but less correlated with other biological fluids.
- there are no test, actually available, non invasive, able to be used on the road

and allowing a detection of all the psychoactive substances concerned.

CLINICAL TESTS OF IMPAIRMENT

Depending of the qualification of the policeman (or other expert) using them, and of the target, we can divide the tests in different categories :

- **the "glance"**
without specific tests, used in the countries where the determination of a reasonable suspicion does not require standardised batteries, the experience of the policeman and his global evaluation, eventually helped by the findings (drug, injection kits) can be enough to lead to Drug Recognition Expertise or to a biological detection
- **simple tests batteries**
used in Switzerland, are based on a codification of the global evaluation .
This codification rests on simple clinical signs :
 - standing up : normally, difficult, impossible
 - walking : normally, difficult, impossible
 - speaking : normal, difficult to understand, impossible to understand;Those simple signs, joined to the findings can allow the policeman to require a biological detection.
- **description police files**
used in france only as a description or, like in Germany, as a part of the police evaluation, they are only based on a description and concern more clinical signs of alcohol related impairments.
They include the general aspects, the general behavior, speaking, standing and walking.
They dont include tests.
- **standardised test batteries**
the most known one is the FST (Field Sobriety Test), widely used, on a first step by field policemen in USA and Scandinavia.
It includes, over the general constatations and evaluation (speaking, walking, general behavior), specific tests led under the control of a policeman :
 - pupill size (3 levels)
 - eye convergence
 - Nystagmus
 - walking on a line
 - turn back
 - finger-nose test
 - Romberg testOther constatations are led : hearth rate, tremor, aspect of the eyes, symptoms of use of drugs.
- **DRE Test Battery**
used by expert policemen, especially trained, the DRE Test Battery includes 12 steps and leads to an evidential report. The tests used are standardised and are led with

respect to a procedure :

- interview of the field policeman
- breath alcohol detection
- interview of the driver (medical diseases, consumption of drugs / alcohol / medicines)
- heart rate (3 times during the test)
- blood pression
- clinical signs of use of drugs (injection, tong, nose)
- balance when standing up
- balance on one leg
- walk and turn test
- Nystagmus
- eyes convergence
- finger nose test
- pupille size determination, and reaction to light.

EVOLUTION AND LIMITS OF THE TESTS BATTERIES

Generally, the countries which began to use simple tests of impairment evaluation by policemen have observed that the policeman got a rather efficient use of those tests and the natural tendancy, after some years, was to complete the test batteries used with more complex tests.

This demand from the police officers is frequently observed, after the first difficulties or refusal. However, this evolution to an increasing complexity of test batteries faces different difficulties or limits.

- **a first difficulty** linked with the different medical and police cultures, concerns the use of clinical tests and their interpretation by non doctors;
 - hearth rate, blood pression, even if usually well accepted in the frame of the DRE Program, should offend the public opinion in other countries where those tests are considered as belonging only to medical or para medical personals
 - the detection of clinical signs of use drugs (mouth, nose, arms) is considered also, in some countries, as belonging to a medical examination
 - the interview, by a policeman, of somebody about medical diseases ('epilepsy, diabetes) is also considered, in many countries, as passing over the notion of Medical Secret, ans would be refused in justice courts.
- **a second question** is linked to the evolution of drugs and, especially, to the increasing use of stimulant drugs, less easy to detect with te classical test batteries. In seems to be necessary, today to find other clinical symptoms more specific to those drugs, and to study their reliability.
- **a third question** concerns the initial training and the maintenance of the certification of the policemen or medical doctors in charge of those evaluations. The maintenance of the training level is one of the main problems, now, in the US DRE Program. The administration faces the difficulty of keeping enough DRE experts with the current requirement of number of evaluations to lead every year to keep the certification.

FUTURE EVOLUTIONS

Since the implementation of the first procedures of detection of alcohol related impairments in drivers, until the most sophisticated detection methods of impairments related to the use of psychoactive drugs, the evolution of police, medical and justice procedures has been led regarding to :

- the specific characteristics of the legal frame work of each country
- the national cultures about the respective role of policeman and doctors in some kind of evaluation
- the technical evolution of biological detection procedures

Today, the way to international harmonization faces the national procedures.

Each country, and within each country each body concerned tries to justify its approach and to improve it in the aim of detecting other substances than alcohol, refusing, in the same time, some necessary evolutions.

THE BASEMENT OF THE DETECTION OF PSYCHOACTIVE SUBSTANCES IN DRIVERS

- **The epidemiological aspect**

- **the role of alcohol** is now well established in the field of road accidents and is the base of efficient but reductive procedures

- **the role of other psychoactive substances** is the matter of many studies.

If most of the scientist accord to admit the negative influence of many psychoactive substances, the precise quantification of their responsibility in road accident is still a subject of discussions.

The improvement of the knowledge in this field requires a sophisticated and permanent collection of dates concerning

- the accident report
- the evaluation of drivers impairment
- the detection and the quantification of the psychoactive substances.

Only the finding, for each substance concerned, of an accident risk increased, of an impairment correlated with a quantified biological evidence will allow the implementation of adapted regulations.

This Data Bank must be permanent to allow the follow up of the evolution of the drugs and of the drugs use, parameter which are in constant and quick change compared to alcohol.

- **the role of information of the justice**

In the absence of epidemiological datas for some psychoactive substances, the justice courts require to give their decision

- the evidence, given by a report, of an impairment, first step before specific scales of sanctions related to biological levels (scales which have currently no scientific basement)
- a biological given by the laboratories

- **the respective role of policemen / experts / medical doctors**

The field policeman, in all cases, will have to receive a basic training to take into account the problems related to other psychoactive substances than alcohol in drivers. He will have to receive the training to be able to establish a reasonable suspicion of impairment.

The second level : the standardised impairment evaluation and report currently led by a requested medical doctor or an expert policeman when it is required by the laws, it will necessarily evaluate technically with an adaptation of the tests regarding to the evolution of the psychoactive substances and, especially to the stimulant drugs which effects are poorly detected with the current test batteries.

In this case we can think that the question will appear of deciding who : expert policemen like DRE or medical doctors will have to proceed to more clinical evaluations regarding to ethical aspects and to consideration about medical secret. In many countries, the role of the policeman will be limited by the law in this field. However, even if the clinical evaluation has to be led by medical doctors , they will also have to receive a specific training and to keep a sufficient level of training. This kind of medical doctor can easily be found in city hospitals or forensic institutes, but with more difficulties in countryside.

In the countries where exist Medical Commission of Driving Licences, we can imagine that those practitioners could be in charge of such evaluations, requested by the police in emergency to evaluate impaired drivers.

This solution could offer different opportunities

- the role of those practitioners, working with the administration and, in this case, with the justice would be clearly defined regarding to ethical aspects and medical secret
- their permanent activity in the field of drivers fitness evaluation give them a good base of knowledge first step before a specific training in psychoactive substances effects
- a logical link would be setted up between impairment detection and follow up of the driving fitness, fitness that they are usually in charge of evaluating
- they should, in this way, over their administrative mission of evaluation of the driving fitness, have a mission, for justice, to appreciate the 3 parameters required by the justice court to base their decisions
 - evaluation of the impairment related to the facts
 - evaluation of the general driving fitness

- evaluation of the required therapeutical follow up, of the possibilities of rehabilitation and alternative sanctions that the court should decide

Independantly of the specific orientation choosen by each country to face the problem of driving under the influence of psychoactive substances, this orientation will reasonably have to rest, in the future, only on the rational use of competences and on its adaptation to technical evolutions in the field of detection and to the evolutions in term of prevention of recidivism.

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