Abstract

Keywords
Traffic medicine; Via Sicura; BAC; Drunk driving offenders; Swiss criteria.

Background
According to Swiss law, several criteria are defined to identify drunk drivers for medical and/or psychological assessment to rule out an alcohol problem. Those criteria are: first time drunk driving offenders with blood alcohol concentration (BAC) ≥2.50 g/kg (criterion 1), second-time drunk driving offenders with BAC ≥1.60 g/kg in five years (criterion 2), or third-time drunk driving offenders with BAC ≥0.80 g/kg in ten years (criterion 3). The expert uses these criteria to determine whether the patient is fit or unfit to drive. In case of unfitness, a specialized alcohol treatment follow-up is mandatory for the individual to recover his/her driver’s license.

Aims
To assess the Swiss criteria for referring drunk driving offenders to medical and/or psychological evaluation, and to examine the prevalence of alcohol problems in this population.

Methods
Data were collected using 209 consecutive cases of drivers who were referred according to the above described criteria between 2010 and 2012. We excluded patients under the influence of drugs and patients unfit for other medical reasons. The screening assessment involved written validated questionnaires (AUDIT, EVACAPA), a personal interview by specialized doctors and/or psychologists, additional questionnaires, information from the driver’s general practitioner, and results of blood alcohol markers. The conclusion of the expert evaluation based on DSM IV criteria was classified as one of four categories: fit with conditions, fit without conditions, unfit - alcohol dependence, and unfit - alcohol abuse.

Results
Among drivers, 73 subjects (35%) presented criterion 1, 104 subjects (50%) criterion 2, and 32 subjects (15%) criterion 3. Only 38 subjects (18%) were considered fit for driving without any restrictions, and 9 subjects (4%) with conditions. The rest of drivers (78%) were considered unfit to drive (alcohol dependence (47%), alcohol abuse (30%)).

Conclusion
The criteria used for medical and/or psychological assessment are appropriate, considering the high rate of problem drinkers observed in this population.

Introduction
Swiss Traffic Law specifies which drivers are to be referred by the Cantonal Driver and Vehicle Licensing Agency to a specialized institute for expert review. The authorities require an expert review
whenever impaired fitness to drive is suspected; for example, when there is evidence of addiction (from a police or medical report). A review may also be requested even if no traffic offense has been committed. In most cases, however, one or more traffic offenses indicate an impaired fitness to drive. The expert review determines the nature and severity of the impairment and a written report is submitted to the authorities.

Switzerland has set up a rigorous program to identify drunk drivers and then to refer them for medical and/or psychological assessment to determine the presence (or not) of an alcohol problem. The criteria are: first time drunk driving offenders with blood alcohol concentration (BAC) ≥2.50 g/kg (criterion 1), second time drunk driving offenders with BAC ≥1.60 g/kg in five years (criterion 2), or three time drunk driving offenders with BAC ≥0.80 g/kg in ten years (criterion 3).

In the Canton of Vaud (French speaking Switzerland, 800,000 inhabitants), the UMPT (Unit of Psychology and Traffic Medicine) in Lausanne has monitored fitness to drive for many years. When inability to drive is presumed for medical, psychological or psychiatric reasons, the unit is asked to prepare an expert evaluation for the Department of Motor Vehicles and Navigation (SAN). After this assessment, the expert determines whether the driver is considered unfit to drive, fit to drive, or fit to drive only under conditions. In the last case, appropriate restrictions are recommended; for example, abstention from alcohol and/or drugs. Conditions related to treatment may also be imposed. In case of unfitness, the driver is required to undergo a specialized follow-up in order to recover his/her license to drive.

On June 15, 2012, the Swiss Parliament adopted the Road Safety Programme "Via sicura." The Federal Council decided to put the measures contained therein into force in a progressive manner. The first application will take place January 1, 2013. A second will occur early in 2014. In Spring 2014, a consultation process with the cantons and interested organizations will be conducted. From January 1, 2014, an expert evaluation is required in cases of driving with BAC ≥1.60 g/kg. The third part contains measures that need more time to prepare. This is mainly due to the adaptation of IT systems at the federal and cantonal level. They can therefore only be set from 2015.

Methods

This retrospective study was carried out in order to analyze the 2010-2012 data from all 209 consecutive cases of drivers who were apprehended by the police for driving under the influence of alcohol and who were referred for an expert examination in our Unit. We excluded patients who were arrested also for driving under the influence of drugs or medication and patients who had other specific pathologies (psychiatric or somatic disease) incompatible with driving. The following information was obtained from the Institute’s records: diagnosis by the traffic safety expert, number of drunk driving offenses, BAC level.

The screening assessments involved written validated questionnaires: AUDIT (Alcohol Use Disorder Identification Test), a questionnaire developed by WHO that identifies individuals along the full spectrum of alcohol misuse and hence provides an opportunity for early intervention in non-specialty settings, and EVACAPA (Evaluation of an action for drivers having a problem with alcohol). The individual underwent a structured diagnostic interview, as well as a personal interview by specialized doctors and/or psychologists, completed significant additional available written questionnaires, and a blood alcohol analysis was done. In addition, with his/her written consent, information from the driver’s general practitioner (when available) was also used in the screening process. All cases were evaluated by two experts, and each case was supervised by the same manager. The conclusion of the expert
evaluation was classified into one of four categories: fit (absence of problem with or without conditions) or unfit to drive and the specific reason for unfitness is given (alcohol dependence or alcohol abuse). The diagnostic terms used in this study were taken from the traffic safety expert reviews. Alcohol dependence/abuse was the term used to define patients with either alcohol abuse or dependence. The criteria for DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition) were used as the reference standard for alcohol dependence and alcohol abuse. According to individuals’ responses, they were classified into DSM-IV categories as alcohol abuse, alcohol dependence or absence of problem. However, in contrast with the DSM-IV, which focuses more on the effects of alcohol abuse on an individual’s health, the expert diagnosis of abuse here is determined with regard to excessive alcohol consumption and its relevance to road traffic. Therefore the diagnosis may be used when there is a least one existing DUI offense and the consumption is of ≥21 standard drink units (SDU) per week for males (equivalent to 210g ethanol), and ≥14 standard drink units per week (equivalent to 140g ethanol) for females.

Results

Socio-demographic and alcohol-related data

1,316 individuals were assessed for eligibility, out of which 1,107 were excluded for various reasons (we excluded patients who were arrested also for driving under the influence of drugs or medication and patients who had other specific pathologies (psychiatric or somatic disease) incompatible with driving). A total of 209 individuals were chosen for our study. The socio-demographic characteristics are presented in Table 1. There was a clear predominance of males (93.3%). According to DSM-IV, drinkers were classified as absence of alcohol problem or fit to drive (n=47; 59.5%), alcohol abuse (n=63; 30.1%), alcohol dependence (n=83; 39.7%) and alcohol abuse/dependence (n=16; 7.7%).

Prevalence of alcohol problems according to Swiss criteria

The prevalence of alcohol problems according to Swiss criteria from all drivers investigated in our unit is shown in Table 2 (N and %). The distribution of fit to drive and unfit to drive individuals is shown in Table 3. Among drivers, 73 subjects (35%) presented criterion 1, 104 subjects (50%) criterion 2, and 32 subjects (15%) criterion 3. Only 38 subjects (18%) were considered fit to drive without any restrictions, and 9 subjects (4%) with conditions. The rest of the drivers (78%) were considered unfit to drive (alcohol dependency (47%), alcohol abuse (30%)). The highest BAC was 3.26 g/kg (criterion 1), 2.48 and 3.17 g/kg (criterion 2) and 1.72, 2.37 and 2.17 g/kg (criterion 3). The lowest BAC was 2.50 g/kg (criterion 1), 0.87 g/kg and 1.14 g/kg (criterion 2), and 0.61 g/kg, 0.70 g/kg and 0.76 g/kg (criterion 3).

Discussion

Data were collected using 209 consecutive cases of drivers who were referred according to the above described criteria between 2010 and 2012 (Figure 1). Numerous studies have demonstrated that problem drinkers (hazardous drinking, alcohol abuse and alcohol dependence) can benefit from medical intervention, but lack of recognition of alcohol related problems by primary health care workers has been frequently reported.

Conclusion

This study will contribute to improving our understanding of the alcohol and driving problem in Switzerland, and could encourage policymakers and politicians to develop enforcement strategies and
improve public awareness of the relationship between drunk driving and BAC. The criteria used by Swiss experts for medical and/or psychological assessment are appropriate, considering the high rate of problem drinkers observed in this population. The results will help shape preventive approaches to drinking and driving in Switzerland.

References


Table 1. Socio-demographic characteristics and alcohol diagnostic classification (according to DSM-IV)

<table>
<thead>
<tr>
<th></th>
<th>MALE</th>
<th>FEMALE</th>
<th>TOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUSE</td>
<td>61</td>
<td>2</td>
<td>63    (30.1%)</td>
</tr>
<tr>
<td>DEPENDENCE</td>
<td>74</td>
<td>9</td>
<td>83    (39.7%)</td>
</tr>
<tr>
<td>DEPENDANCE/ABUSE</td>
<td>14</td>
<td>2</td>
<td>16    (7.7%)</td>
</tr>
<tr>
<td>FIT TO DRIVE</td>
<td>46</td>
<td>1</td>
<td>47    (22.5%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>195  (93.3%)</td>
<td>14  (6.7%)</td>
<td>209</td>
</tr>
</tbody>
</table>
Table 2. Prevalence (N et %) of alcohol problems according Swiss criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>N</th>
<th>Fit</th>
<th>Fit</th>
<th>Fit w.r.</th>
<th>Unfit</th>
<th>Addiction to alcohol</th>
<th>Abuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 First time ≥2.50 g/kg</td>
<td>73</td>
<td>17</td>
<td>13</td>
<td>4</td>
<td>56</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(23%)</td>
<td>(18%)</td>
<td>(5%)</td>
<td>(77%)</td>
<td>(66%)</td>
<td>(11%)</td>
</tr>
<tr>
<td>2 Second time ≥1.60 g/kg</td>
<td>104</td>
<td>23</td>
<td>20</td>
<td>3</td>
<td>81</td>
<td>46</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(22%)</td>
<td>(19%)</td>
<td>(3%)</td>
<td>(78%)</td>
<td>(44%)</td>
<td>(34%)</td>
</tr>
<tr>
<td>3 Three time ≥0.80 g/kg</td>
<td>32</td>
<td>7</td>
<td>5</td>
<td>2</td>
<td>25</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(22%)</td>
<td>(16%)</td>
<td>(6%)</td>
<td>(78%)</td>
<td>(16%)</td>
<td>(63%)</td>
</tr>
</tbody>
</table>

Table 3. Distribution of patients among fit to drive condition and unfit to drive condition

<table>
<thead>
<tr>
<th>Criteria</th>
<th>N</th>
<th>Fit</th>
<th>Fit</th>
<th>Fit w.r.</th>
<th>Unfit</th>
<th>Addiction to alcohol</th>
<th>Abuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 First time ≥2.50 g/kg</td>
<td>73</td>
<td>100%</td>
<td>76%</td>
<td>24%</td>
<td>100%</td>
<td>86%</td>
<td>14%</td>
</tr>
<tr>
<td>2 Second time ≥1.60 g/kg</td>
<td>104</td>
<td>100%</td>
<td>87%</td>
<td>13%</td>
<td>100%</td>
<td>57%</td>
<td>43%</td>
</tr>
<tr>
<td>3 Three time ≥0.80 g/kg</td>
<td>32</td>
<td>100%</td>
<td>71%</td>
<td>29%</td>
<td>100%</td>
<td>20%</td>
<td>80%</td>
</tr>
</tbody>
</table>

Figure 1