MEDICAL PRACTICE

Contemporary Themes

Alcohol and the driver*

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Since 1950 the consumption of alcohol per head of population in Britain has almost doubled. On the basis of known correlations the number of heavy drinkers is likely to have quadrupled. Over the same period the number of licensed motor vehicles has also quadrupled. The association between alcohol and driving is therefore now far more likely to occur, and our road accident statistics confirm that alcohol-related accidents have been increasing. The association may occur in a wide variety of drivers, ranging from the occasional drinker, through those with ordinary patterns of social drinking, to the regular taker of large quantities of alcohol and alcoholics. In this paper I am particularly concerned with the heavy drinker.

Effects of alcohol on drivers

Because drinking alcohol is an accepted social habit in Britain few people realise that alcohol is the most powerful depressant of the central nervous system to be freely available without a doctor's prescription. Before the discovery of the volatile anaesthetics it was commonly used to anaesthetise patients undergoing operations such as amputations. Our failure to recognise alcohol as a drug (which is what it is) has influenced the attitude of the public towards measures proposed to control alcohol-related accidents, and it is important to appreciate the properties of alcohol as a drug which specifically increase the risk of accident and which distinguish it from other important causes of accidents.

One of its most important effects is the feeling of euphoria

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that it induces: it creates a sense of well-being and a subjective estimation of performance which is out of all proportion to reality. One can easily see why such a drug enjoys considerable popularity. One can also see that such a state of mind is highly dangerous in a driver. One of the consequences of this is that although most drivers accept that alcohol increases the risk of an accident, they are, nevertheless, prepared to drive once they have been drinking.

Fortunately for all of us the absolute risk of being involved in road accidents is remarkably low, so that the relative risk can be increased many times in a driver—for example, by his taking alcohol—without the consequences being brought home to him in the form of personal involvement in an accident. He will recall that he has driven home safely on several occasions after drinking and will see no reason why he should not do so on this occasion. He appreciates the risk but is quite happy to take it because he does not believe that an accident will happen to him.

It is relatively easy to sell someone a life assurance policy even though he knows that the risk of his failing to reach the age at which the policy matures is relatively low. But we seem to be unable to stop the same person from driving after taking alcohol even though he knows that he is incurring a very much higher risk of having an accident. This paradoxical aspect of driver behaviour is by no means confined to alcohol. It can be seen in the reluctance to wear seat belts and the tendency to drive at excessive speeds. But it is aggravated by alcohol, and it is no coincidence that the level of seat belt wearing is very low in those drivers who have alcohol-related accidents.

Alcohol has certain specific effects on bodily functions which are important to safe driving. As relatively low concentrations of alcohol have little effect on simple reaction time and on tasks that require concentrated attention, it may not appear obvious to the driver himself nor to his immediate acquaintances that his ability to drive safely has been impaired, particularly if he is used to drinking alcohol regularly. Unfortunately, the ability to drive safely depends not on simple reaction time but on complex reactions, and it is not the concentrated attention of the driver which matters so much as the extent to which his attention can

be divided appropriately between the various things that are happening on the road. It is just these functions that are affected adversely by alcohol. The consequences are particularly dangerous when the driver has to deal with an unexpected situation of the type that so often precedes an accident.

Other adverse effects of alcohol include the tendency to veer over the centre of the road into the path of oncoming traffic and to take much longer to correct such steering errors; and alcohol also reduces considerably tolerance to glare from the headlights of other vehicles. Road accidents happen more often at night, and so does drinking. These special properties of alcohol as a drug go some way to explaining why accidents associated with it are more likely to result in death or serious injury. This aspect of alcohol-related accidents is not sufficiently appreciated.

Another property of alcohol as a drug is its tendency to cause "addiction" in certain people, as a result of which the driver may feel compelled to drink alcohol regardless of the circumstances. A previous conviction for drinking and driving is a remarkably constant feature in the early history of alcoholics and they are particularly likely to repeat the offence. Like other drivers, the alcoholic may be convinced of the increased risk of accident after drinking, but the need to drink is, for him, an overriding consideration.

The high-risk driver

Many carefully controlled accident surveys have shown that the risk of accident accelerates rapidly with increasing blood alcohol concentration, and we should therefore pay particular attention to the drivers who are most likely to reach these higher concentrations. If they were ordinary drivers who had inadvertently exceeded the statutory limit we would expect to find large numbers of drivers being detained by the police with blood alcohol concentrations around 80-100 mg/100 ml. In fact most drivers detected with concentrations over 80 mg are found to have exceeded more than twice the statutory limit. They are not ordinary typical drivers; they are highly atypical drivers who may have drunk almost a bottle of distilled spirits. We know that only regular drinkers of large amounts of alcohol can tolerate such high concentrations without feeling ill. This point is not sufficiently appreciated and it underlines the fallacy of the popular reaction to the convicted drinking driver, which can be summed up as: "There, but for the grace of God, go I."

Both the state of mind that alcohol provokes in the driver and the attitude of the public towards drivers convicted of the offence are important in explaining some of the difficulties we experience in controlling the problem of the drinking driver. I shall now consider some of the more important countermeasures which we have adopted, or which are under consideration, in the light of what I have said about the effects of alcohol as a drug.

Measures to control the drinking driver

Publicity campaigns

One of our chief items of expenditure in the control of drinking and driving is the publicity campaign, usually in the form of motivational messages such as "Don't drink and drive." I see little point in continuing to devote such a large proportion of available resources to such measures as most drivers already accept the fact that alcohol increases the risk of accident. Furthermore, the message does not register at the time which matters—when the driver has already been drinking. Also, those drivers who are most likely to be involved in alcohol-related accidents, such as very heavy drinkers and alcoholics, will not be affected by such publicity.

Lowering the limit

Another measure which has been widely canvassed is to lower the statutory limit to 50 mg/100 ml. There are several

reasons why this would be counterproductive. Firstly, it is unlikely to influence those very high-risk drivers who already drive at more than two or three times the existing limit. Secondly, it would threaten with prosecution and loss of licence a large group of ordinary social drinkers, many of whom incur a relatively low risk of accident. The individual variation in risk between 50 and 80 mg is considerable and some drivers would be convicted in circumstances where they had not incurred significant additional risk. Certainly it would be very satisfactory if all drivers between 50 and 80 mg could be kept off the roads, as most drivers are affected adversely at concentrations over 50 mg, but they are not the priority group in terms of accident risk and there is no justification for singling them out for special treatment before tackling the far more important problem of the very high-risk drivers. Thirdly, the police would experience much more difficulty in deciding whether or not such drivers had been drinking. They have quite enough difficulty with the existing limit, bearing in mind the tendency of the courts to overrule them. Finally, one of the major problems is the "hit-and-run" driver. The number of hit-and-run accidents has increased recently and can be expected to increase still further if the drivers concerned know that they may be prosecuted after having taken only very small amounts of alcohol.

Random testing

Another measure which has attracted considerable attention is the introduction of what are known as "random breath tests," by which is meant the taking of breath tests by the police at will. A roadblock at which all drivers are stopped and tested (irrespective of whether they appear to have been drinking) provides an example of what is meant by this proposal. Such measures have not been very successful in other countries, because, fortunately for all of us, the number of drivers with blood alcohol concentrations over the statutory limit is still relatively small, so that a very large number of cars have to be stopped to detect drivers who have exceeded the limit. A great deal of inconvenience is caused to motorists and the measure is not cost-effective in terms of police time.

Increasing the level of enforcement

Increasing the level of enforcement of the existing law on a selective basis would increase the level of the driver's perception of being detected. One American expert who has closely studied the problem in Britain concluded that "the risk of apprehension for a drinking driver in Britain is realistically quite minute and this fact is increasingly being learnt by the public, who are adjusting their behaviour in consequence."¹ Well over a million breath tests are administered each year in France, compared with 100 000 to 200 000 in Britain.

Such attempts as have been made to increase levels of enforcement have yielded impressive results. The exercise carried out in Cheshire in 1975, when for a limited period police carried out breath tests on all drivers involved in accidents or moving-traffic offences, resulted in a tenfold increase in breath tests, twice as many convictions, and a reduction of 60% in the number of accidents resulting in death or serious injury that occurred during drinking hours. The associated publicity greatly increased the drinking driver's level of perception of the risk of being detected and there can be no doubt that the habit of taking alcohol in relation to driving was dramatically modified—so long as the action lasted.

Increasing the level of enforcement of the existing offence by selective means—for example on roads where, and at times when, alcohol-related accidents are most likely to occur—provides the best chance of success. It will, of course, require a radical reappraisal by the police towards their role in combating the drinking driver. The police must realise that by using the screening breath test more extensively and more selectively they

will be making a very valuable contribution to reducing road accident mortality and morbidity. They are, in effect, enforcing one of the most effective pieces of public health legislation in the 20th century. Not only are police officers prone to regard the enforcement of traffic laws as an unwelcome diversion from what they perceive to be more important work of enforcing other parts of the criminal law, but they are demoralised by the determination of the courts to acquit drivers found to have had very high blood alcohol concentrations on what can be described only as legal technicalities. The reluctance of the courts to accept a situation where guilt depends almost exclusively on the results of a scientific test is understandable. But in public health terms there is little difference between allowing a driver proved to have driven with a very high blood alcohol concentration to continue to drive and allowing a food handler proved to be a typhoid carrier to continue to work in a canteen or restaurant. Public opinion and the reaction of the courts to these two situations are, however, very different.

NEED FOR MORE RESEARCH

It is, of course, essential that discussion of the appropriate measures to control alcohol-related accidents should take place in the light of adequate data, and certain essential information is missing. We have no information about the distribution of blood alcohol concentrations in a representative sample of the driving population. We know a lot about the distribution in drivers killed in road accidents and in those who are breathalysed, but both those groups are highly unrepresentative. Many other countries have collected this information by means of voluntary roadside surveys using breath samples, and there is an urgent need for Britain to do the same.

NEED FOR LEGISLATION

The existing law does permit a considerable stepping up in the level of enforcement along the lines I have suggested, so that new legislation should not be necessary on that account. But there is always the possibility that the courts will continue to acquit drivers found to have driven with very high blood alcohol

concentrations on grounds that the technicalities of the breath testing procedure have not been followed or even on the fiction that the police officer had no reason to suppose the driver had taken any alcohol. This was no doubt why the Blennerhassett Committee² went so far as to propose that the law should be changed to give the police complete discretion. I hope that it will not prove necessary to introduce such a law, but I recognise that it may be the only solution in the face of the traditional and unique attitude of the courts in Britain towards the drinking driver.

Legislation will, however, be necessary to ensure that the very high-risk drivers who are convicted of the offence no longer have their driving licences handed back to them automatically at the end of a year, as at present, and that the restoration of their licence is conditional on their showing that their driving is no longer a danger to themselves and to other road users. Consultations on the relevant proposals for legislation in the report of the Blennerhassett Committee have reached an advanced stage and all that is necessary is enough parliamentary time and sufficient public support to ensure that they are not defeated. This is not a party political issue, but it will require a strong government to introduce the necessary legislation in the face of public opposition.

Misconceptions

Much of the opposition to measures proposed to control the drinking driver is based upon misconceptions about the effects of alcohol as a drug and about the kind of driver who is most likely to be involved in alcohol-related accidents. In particular, accidents caused by drunk drivers are most likely to result in death or serious injury. If these misunderstandings can be corrected then we shall be in a very much better position to deal with the problem in the future.

References

- ¹ Ross, H L, *Journal of Legal Studies*, 1973, 2, 1.
- ² Department of the Environment, *Drinking and Driving. Report of the Departmental Committee*. London, HMSO, 1976. (Blennerhassett Report.)

What is the best treatment for wax in the ears?

The best treatment for wax in the ears is not to have wax. The ear is a self-cleaning organ, and if allowed to do so will discharge wax through the meatus by epithelial migration. Ears that accumulate wax should be cleaned by syringing. A special ear syringe should be used with a "screw on" nozzle. The stream should be directed up towards the roof of the meatus, and the lotion used should be at 37°C. Hard wax may be softened by applying a few drops of warm olive or castor oil for two to three nights before syringing. Some ears develop pockets in the deep external meatus adjacent to the tympanic membrane. The wax combines with desquamated epithelium, and is very difficult to dislodge. This is probably best cleared by the otologist, and once cleared the meatus should be treated with dilute salicylic acid ointment. Where a perforation is known to exist, or is suspected, the patient should be referred to hospital for removal of wax.

A patient with coronary occlusion and arrhythmia taking propranolol has suffered from diarrhoea as a side effect. Is there another beta-blocker drug that she might take?

Diarrhoea has been reported as a side effect of treatment with most beta-blockers, but it is not common. The mechanism of the diarrhoea is not certain, but if it were due to an effect of gastrointestinal beta-receptors it should occur less often with the cardioselective beta-blockers. Comparative incidence figures are not available, but the data suggest that it is uncommon with atenolol and metoprolol, both of which are cardioselective. As patients may respond differently to

different beta-blockers it would be reasonable to try changing to another beta-blocker, and I would suggest either metoprolol or atenolol.

What is meant by intrinsic sympathomimetic effect, and what is the beta-blocker of choice in managing thyrotoxicosis with heart failure?

The beta-blockers are all structural analogues of isoprenaline that act by competitive inhibition of catecholamines at beta-adrenergic receptors. Some of them (acebutolol, oxprenolol, pindolol, and practolol) also have sympathomimetic effects in doses that produce beta-blockade, and this effect is called intrinsic sympathomimetic or partial agonist activity. It is doubtful whether it has any clinical importance in most of the diseases for which beta-blockers are used, and there is little evidence that it prevents the development of cardiac failure. In thyrotoxicosis drugs with intrinsic sympathomimetic activity are less effective in controlling the pulse rate than those without, and propranolol is the drug of choice. In a patient with heart failure and thyrotoxicosis propranolol may be used provided the patient is taking digitalis and is given a diuretic. The starting dose should be small, increasing gradually to the minimum required to control the symptoms of thyrotoxicosis. If the heart failure is directly due to thyrotoxic tachycardia or atrial fibrillation it usually responds rapidly to control of the pulse rate, and the digoxin can be stopped.

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