Is liver transplant for alcohol-related end-stage liver disease appropriate?

Every year patients die from end-stage liver disease while they are on the waiting list to receive a liver transplant because of the shortage of available organs. Should patients with alcohol-related end-stage liver disease compete equally for access to this scarce resource?

Between 600 and 700 liver transplants are performed in the UK each year, yet the demand for transplants continues to exceed the supply of available organs, meaning people on the waiting list die of liver failure before an organ becomes available (NHS Blood and Transplant, 2013). Liver transplants are considered to be a 'non-renewable absolutely scarce' resource (Moss and Siegler, 1991), which generates much debate over who should receive priority for this lifesaving treatment.

There is much controversy surrounding transplantation in patients who suffer with alcohol-related end-stage liver disease. Current guidelines recommend a 6-month abstinence period from alcohol alongside meticulous physiological and psychological assessments before a patient can be considered for a liver transplant (Department of Health, 2005; UK Liver Transplant Group, 2005). A patient with alcohol-related end-stage liver disease is required to sign an agreement not to drink and be followed up with regular blood alcohol tests. Patients who are unable to abstain from alcohol are excluded from being candidates for liver transplantation (UK Liver Transplant Group, 2005). However, such stringent criteria are not applied post liver transplantation and some patients do revert back to excess alcohol with recurrence of liver failure and subsequent death (Kotlyar et al, 2008).

The medical argument underpinning the instigation of these guidelines relates to the predicted outcome of graft survival in patients with alcohol-related *vs* non-alcohol-related end-stage liver disease. Those who do not abstain from alcohol for 6 months are more likely to relapse and damage their transplanted livers with alcohol thus reducing graft survivability (Karim et al, 2010).

Predicted survival, and hence best outcome, places great weight on the decision to allocate organs for transplant. This is largely reflective of the scarcity of the resource; one could argue there is a duty to the donor and his/her family for the liver to be given the best chance of survival. In the UK, liver transplant is usually not recommended if predicted survival is less than 50% (Department of Health, 2005). This allocation principle is based upon the fact that donor organs are scarce. However, this needs to be balanced against a 15% mortality in patients who are awaiting a liver transplant (Miwa et al, 1999).

In addition to medical opinion there are many ethical considerations regarding the allocation of liver transplants. Some argue that even the inclusion of carefully selected patients with alcohol-related end-stage liver disease, who have proven abstinence, places a considerable strain on scarce resources (Moss and Siegler, 1991). This article will focus upon the question of whether a liver transplant should be offered to a patient with alcohol-related end-stage liver disease.

Discussion

Responsibility

There is a longstanding argument that patients with alcoholic end-stage liver disease hold a personal responsibility for their disease and should, as a result of this responsibility, be given lower priority for receiving a liver transplant than other end-stage liver disease patients (Cohen and Benjamin, 1991; Moss and Siegler, 1991; Glannon, 1998).

Glannon (1998) accepted this argument but stated that for one to hold responsibility he/she must have causal control over the events that determined his/her diseased condition. If people with non-alcoholic end-stage liver disease have no control over the disease that befalls them but alcoholics have the opportunity to control the events which lead to disease, yet fail to do so, it surely seems reasonable to conclude that they should be given lower priority than non-alcoholics in receiving a liver transplant?

This argument is built upon the premise that alcoholics have control over their disease. Some believe that alcoholism is a disease itself which is heavily influenced by genetic inheritance, family upbringing and socioeconomic factors which may outweigh an individual's ability to exercise the control needed to be responsible for the disease (Cohen and Benjamin, 1991; Benjamin and Turcotte, 1994). This article will explore the factors impacting causal control in alcoholism to enable conclusions regarding responsibility to be drawn.

Ms Deborah Bailey *is Medical Student in the University of Leeds School of Medicine, Leeds,* **Mr Samir Pathak** *is Research Fellow in Transplant Surgery and* **Mr Niaz Ahmad** *is Consultant Transplant Surgeon in the Department of Hepatobiliary and Transplant Surgery, St James's University Hospital, Leeds LS9 7TF*

Correspondence to: Mr N Ahmad (Niaz.Ahmad@leedsth.nh.uk)

Genetics

There is some evidence to propose a genetic component to alcoholism which would suggest that it is at least partially beyond the control of an individual. Retrospective adoption studies found that young children adopted from alcoholic biological parents and raised in a non-alcoholic family were more likely to develop alcohol problems as adults compared to adoptees whose biological parents were not alcoholics (Cloninger et al, 1981), indicating a likely familial link. Furthermore, past studies have found identical monozygotic twins to be nearly two times more likely to be equivalent for alcoholism than dizygotic twins of the same sex (Gordis et al, 1990), further supporting a likely genetic component. Research into specific genetic markers during the 1990s found that individuals with the A1 allele of the dopamine D2 receptor are more susceptible to alcoholism than those who do not possess the allele (Blum et al, 1990; Gordis et al, 1990; Cloninger, 1991).

Such research should be interpreted with caution before concluding that alcoholism must therefore be beyond an individual's control. First the findings indicate only an increased likelihood of developing alcoholism; a single gene does not cause the disease. Second, as argued by Cloninger (1991), the A1 allele or other unknown genetic components may well increase the likelihood that a person becomes addicted over time, but it cannot be held accountable for driving the individual to begin drinking in the first place.

Social influence

For a person to have control over the decision to engage in drinking alcohol, a behaviour that may well lead to disease, he/she needs to have made an autonomous decision not influenced by external coercion or social and economic conditions. There is an argument to suggest that individuals who were subject to an upbringing that promoted alcoholism, such as alcoholic parents or an abusive or neglectful family background, are more likely to become alcoholics (Benjamin and Turcotte, 1994; Health and Social Care Information Centre, 2012; HM Government, 2012).

On a larger scale it could be argued that within the UK media and popular culture positively encourages alcohol consumption, which may lead to individuals feeling pressurized into drinking to avoid social exclusion (HM Government, 2012). For example, drinking is portrayed in films and adverts as being fashionable or glamorous, and bars and nightclubs promote alcoholic drink offers which are often cheaper than non-alcoholic drinks (National Institute for Health and Clinical Excellence, 2010; HM Government, 2012).

The important influence that society and culture have upon the nation's drinking habits has been acknowledged in the government guidelines on alcohol (HM Government, 2012). The 'collective pledge on alcohol' aims to discard a billion units of alcohol from the alcohol industry through an ambitious plan to help customers drink within guidelines (Department of Health, 2011).

Failure to seek help

If alcoholism were to be accepted as a disease whose development was beyond the control of an individual, Moss and Siegler (1991) argue that one may still be held responsible for developing end-stage liver disease because of a failure to seek treatment to eliminate one's alcoholism. This was referred to by Glannon (1998) as a retrospective responsibility given that alcohol-related end-stage liver disease usually results from 10–20 years of heavy drinking.

For this responsibility to be upheld a patient needs to have understood the consequences of his/her choices. Across the UK there is a large-scale media campaign aimed at educating people on what constitutes an unhealthy alcohol intake, how to acknowledge alcohol dependence and signposts to services available for individuals who need help (HM Government, 2012). The British government have published guidelines recommending that men should not regularly drink more than three to four units of alcohol a day and women no more than two to three units, with two alcohol-free days per week encouraged for both sexes (National Institute for Health and Clinical Excellence, 2010; HM Government, 2012). With information on the effects of alcohol on health being readily available on television and radio adverts, billboards, posters and even the labels of alcoholic beverages it could be fair to assume that a reasonable person would be aware of what constitutes unhealthy drinking habits and the risk of liver disease (Cloninger, 1991).

A 2009 Omnibus survey on drinking reported 75% of people had heard of daily drinking limits, furthermore heavier drinkers were more likely to have heard of daily drinking limits than non-drinkers and those who drank very little (Lader and Steel, 2008). These findings indicate that guidelines are reaching the majority, but the message often fails to modify drinking behaviour in individuals who drink in excess of the recommended daily allowance (Lader and Steel, 2008). This perhaps signifies a need to re-focus the campaign to emphasize the harder hitting harmful effects of alcohol to harbour an effect, similar to campaigns seen with smoking.

For individuals who drink excessively but wish to stop, there are a number of established health and social support services available free at the point of access both within the NHS and through voluntary organizations (Benjamin and Turcotte, 1994). It could be argued that, given the support and information available for an individual to seek or accept treatment before end-stage liver disease occurs, the individual could be held responsible for a failure to do so.

Mental health considerations

Co-morbid mental health conditions such as depression are common in people who engage in unhealthy alcohol

consumption (Johnson et al, 1995). How far the mental health condition contributes to alcoholism and vice versa remains a difficult question to assess and may only be attempted on a case-by-case basis where the history of the development of alcoholism is better known. However, if alcoholism and mental health are closely entwined can an individual be held causally responsible for his/her disease? Alcoholism may have developed as a coping mechanism adopted by an individual with a pre-existing mental health condition.

Mental illness can also impact upon one's ability to seek help for alcoholism. People with depression classically have a lack of motivation and experience feelings of worthlessness and guilt (Burton, 2006). Such symptoms could lead an individual to believe that he/she does not deserve to receive treatment or get better, thereby impacting his/her capacity to make the informed decision to seek treatment.

The idea of a psychiatric component to alcoholism could certainly detract from an individual's ability to accept responsibility, highlighting the need for individual assessments and personal history. However, in the case of liver transplant, co-morbid mental health conditions are themselves seen as an indicator for poor engagement in follow up and taking of vital medications needed to ensure graft survival. Therefore mental illness may be viewed as a whole new ethical debate beyond the scope of this article.

A moral stance

Whether one is responsible for the actions that lead to one's disease or not, is it morally and ethically just to refuse one person life-saving treatment over another on the grounds of lifestyle choices?

Benjamin and Turcotte suggest that holding patients with alcoholic end-stage liver disease responsible for their illness on the basis of lifestyle choices and thus denying them the same right to treatment as those who did not engage in alcoholism unfairly singles them out (Benjamin and Turcotte, 1994). A number of severe illnesses are attributed to patient conduct, for example the well-known links between cardiovascular disease and high fat diets, a sedentary lifestyle and smoking. Patients are frequently educated about specific lifestyle choices on the basis that they are likely to cause life-threatening illness and costly treatment. However, when a patient fails to make alterations to his/her behaviour and as a consequence suffers an illness such as a heart attack, the patient is treated without hesitation. Furthermore in lung cancer, the National Institute for Health and Clinical Excellence (2011) guidelines specifically urge clinicians not to postpone surgery to allow patients to stop smoking.

For the argument of responsibility to be upheld surely all patients need to be held accountable if their behaviours have led to disease? One could suggest that refusing to treat alcoholic end-stage liver disease while continuing to treat other illnesses that result from lifestyle choices is not only discriminatory but instigates a moral vice against drinking. Furthermore giving a lower priority to or denying alcoholics liver transplantation could be seen to turn the allocation of scarce resources into a punishment for a 'morally unacceptable' form of behaviour (Glannon, 1998).

Benjamin and Turcotte (1994) suggest that alcoholics could be rightly precluded from receiving a transplant if the qualification for a new organ requires a 'level of moral virtue or is cancelled by a level of moral vice'. There is, however, no method to determine what constitutes a moral virtue or vice and therefore the imposition of 'punishment' is unjustified.

Social cost and public perception

On the basis of responsibility there is the argument that the distribution of liver transplants should consider the 'social cost' (Luecy et al, 2001). Is it unfair to demand sacrifice from persons who exercise control over their health in order to treat others with diseases which result from failure to do so?

Historically there is a negative public perception of alcohol dependency which largely influences the opinion that it is of social cost to treat those with self-inflicted liver disease over those who have not (Neuberger et al, 1998). A study by Ubel et al (1999) demonstrated that the general public was less likely to support the allocation of organs to people who engaged in socially unacceptable behaviours compared to those who did not. Moral judgements were held in higher regard than predicted survival outcomes or responsibility of the patient (Ubel et al, 1999).

Benjamin and Turcotte (1994) suggest that reducing restrictions on patients with alcohol-related end-stage liver disease could lower the support for liver transplantation and thus the number of people joining the transplant register if the public believed alcoholics were to constitute a significant proportion of recipients. With the organs available for transplant already failing to meet the demands of those with end-stage liver disease waiting to receive them this could have a major impact on the availability of livers for all patients with end-stage liver disease. Thus there could be a claim to give priority to non-alcoholic end-stage liver disease patients to preserve the integrity of the transplant system. However, this action may be seen as enforcing the public stereotype and negative opinion of alcoholic end-stage liver disease and serve to pass moral judgement on an individual's lifestyle choices.

Conclusions

The allocation of liver transplants remains a difficult and sensitive topic of debate with the need for decisions regarding who receives a transplant being largely driven by the severity of disease, predicted outcome post transplant and scarcity of donor organs. This review upholds the view that it is ethically wrong to deny alcoholics treatment on the basis of a moral stance against drinking. As physicians we cannot use the allocation of liver trans-

plants as a punishment for lifestyle choices. The role of medical professionals is to encourage and support patients to engage in healthy lifestyle choices, not to punish or exclude those who do not. We are not in a position morally or legally to judge what constitutes moral or immoral behaviour.

There is, however, a strong argument to support and uphold the principle that patients with alcohol-related end-stage liver disease should carry at least part of the responsibility for continuing to engage in behaviours that lead to both alcoholism and eventually liver disease. In an era when access to information and support services are so readily available, one must accept the responsibility for a failure to seek or accept help to make lifestyle alterations that have the potential to change the course of one's disease. It is on the grounds of responsibility for one's own health that alcoholics may be given lower priority for a liver transplant. They were born with a liver that worked and through a series of autonomous choices that must be respected as an individual's right to free choice and not judged, have come to need a replacement one.

There are complex and multiple factors contributing to an individual's alcoholism that question one's ability to exert control over one's own behaviour such as mental health conditions and these should be taken into consideration on a case-by-case basis when attempting to understand the history of an individual's disease. **BJHM**

Conflict of interest: none.

Benjamin M, Turcotte JG (1994) Ethics Alcoholism and Liver Transplantation. In: Luecy MR, Merion RM, Beresford TP, eds. *Liver Transplantation and The Alcoholic Patient: Medical, Surgical and Psychosocial Issues.* Cambridge University Press, Cambridge: 113–30

Blum K, Noble EP, Sheridan PJ et al (1990) Allelic association of human dopamine D2 receptor gene in alcoholism. *JAMA* **263**: 2055–60

Burton NL (2006) *Psychiatry*. Blackwell Publishing, Oxford

Cloninger CR (1991) D2 dopamine receptor gene is associated but not linked with alcoholism. *JAMA* **266**: 1833–4

Cloninger RC, Bohman M, Sigvardsson S (1981) Inheritance of alcohol abuse: cross-fostering analysis of adopted men. *Arch Gen Psychiatry* **38**(8): 861–8

Cohen C, Benjamin M (1991) Alcoholics and liver transplantation: The Ethics and Social Impact Committee of the Transplant and Health Policy. *JAMA* **265**: 1299–301

Department of Health (2005) National Liver Transplantation Standards. www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4117855.pdf (accessed 10 November 2012)

Department of Health (2011) Public Health Responsibility Deal: Alcohol Pledges. https://responsibilitydeal.dh.gov.uk/wp-content/uploads/2012/03/The-Public-Health-Responsibility-Deal-March-20111.pdf (accessed 10 November 2012)

Glannon W (1998) Responsibility, alcoholism and liver transplantation. *J Med Philos* **23**(1): 31–49

Gordis E, Tabakoff B, Goldman D, Berg K (1990) Finding the gene(s) for alcoholism. *JAMA* **263**(15): 2094–5

Health and Social Care Information Centre (2012) Statistics on Alcohol: England, 2012. https://catalogue.ic.nhs.uk/publications/public-health/alcohol/alco-eng-2012/alco-eng-2012-rep.pdf (accessed 10 November 2012)

HM Government (2012) The Government's Alcohol Strategy. www.homeoffice.gov.uk/publications/alcohol-drugs/alcohol/alcohol-strategy?view=Binary (accessed 10 November 2012)

Johnson JG, Spitzer RL, Williams JBW et al (1995) Psychiatric comorbidity, health status, and functional impairment associated with alcohol abuse and dependence in primary care patients: findings of the PRIME MD-1000 study. *J Consult Clin Psychol* **63**(1): 133–40

Karim Z, Intaraprasong P, Scudamore CH et al (2010) Predictors of relapse to significant alcohol drinking after liver transplantation. *Can J Gastroenterol* **24**(4): 245–50

Kotlyar DS, Burke A, Campbell MS, Weinrieb RM (2008) A critical review of candidacy for orthotopic liver transplantation in alcoholic liver disease. *Am J Gastroenterol* **103**: 734–44

Lader D, Steel M (2008) Opinions Survey Report No 42; Drinking: adults' behaviour and knowledge in 2008. Office for National Statistics, Licensing and Public Sector Information, Norwich

Luecy MR, Merion RM, Beresford TP (2001) Liver Transplantation and The Alcoholic Patient. In: Maddrey WC, Schiff ER, Sorrell MF, eds. *Transplantation of the Liver*. 3rd edn. Lippincott Williams and Wilkins, Philadelphia: 319–26

Miwa S, Hashikura Y, Mita A et al (1999) Living-related liver transplantation for patients with fulminant and subfulminant hepatic failure. *Hepatology* **30**(6): 1521–6

Moss AH, Siegler M (1991) Should alcoholics compete equally for liver transplantation? *JAMA* **265**: 1295–8

National Institute for Health and Clinical Excellence (2010) Alcohol-use disorders; preventing harmful drinking. NICE public health guidance 24. www.nice.org.uk/nicemedia/live/13001/48984/48984.pdf (accessed 10 November 2012)

National Institute for Health and Clinical Excellence (2011) Lung cancer. The diagnosis and treatment of lung cancer. NICE clinical guideline 121. www.nice.org.uk/nicemedia/live/13465/54202/54202.pdf (accessed 10 November 2012)

Neuberger J, Adams D, McMaster P et al (1998) Assessing priorities for allocation of donor liver grafts: survey of public and clinicians. *BMJ* **317**: 172–5

NHS Blood and Transplant (2013) Organ Donation and Transplantation - Activity figures for the UK as at 12 April 2013. www.organdonation.nhs.uk/statistics/downloads/annual_stats.pdf (accessed 22 July 2013)

Ubel PA, Baron J, Asch DA (1999) Social responsibility, personal responsibilty and prognosis in public judgements about transplant allocation. *Bioethics* **13**: 57–68

UK Liver Transplant Group (2005) Liver Advisory Group Alcohol Guidelines: UK Liver Transplant Group Recommendations for Liver Transplant Assessment in the Context of Alcohol-related Liver Disease. www.organdonation.nhs.uk//ukt/about_transplants/organ_allocation/pdf/liver_advisory_group_alcohol_guidelines-november_2005.pdf (accessed 10 November 2012)

KEY POINTS

- In the UK the demand for liver transplantation as the only treatment for end-stage liver disease continues to surpass the supply of available organs.
- There is a longstanding debate as to whether patients with alcohol-related end-stage liver disease should receive equal access to liver transplants compared to patients who have acquired end-stage liver disease through a non-alcohol-related disease process.
- The concept of responsibility for one's own health and lifestyle choices questions how the root cause of alcoholism and its impact upon the physical and mental health of an individual may affect one's ability to accept responsibility for alcohol-related end-stage liver disease.
- Moral, ethical, financial and social considerations play an important role in the debate over the allocation of organs for transplant.
- Medical professionals are not in a position to deny alcoholics treatment on the basis of a moral stance against drinking.
- Decisions to allocate liver transplants to patients with alcohol-related end-stage liver disease should be person centred and consider the multiple and complex factors contributing to alcoholism as well as the level of responsibility a person may be said to hold for his/her disease.