LETTER TO THE EDITOR

Can Part of the Health Damage Linked to Alcohol Misuse in Scotland be Attributable to the Type of Drink and its Low Price (by Permitting a Rapid Rate of Consumption)? A Point of View

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Abstract — This article considers two sets of data describing the extent of consumption of white spirit drinks by a sample of patients who abuse alcohol and the analysis of drink antioxidant content. We present a proposal for discussion that the rapid consumption of alcoholic drinks, low in protective antioxidant compounds, may potentially be more damaging to the body.

INTRODUCTION

Vodka is now the highest selling spirit category within the UK. Much of this is from ‘Off Trade’ outlets where sales now account for 74% of the UK vodka market (The Gin and Vodka Association, 2010). Within Scotland recent increases in alcohol consumption have been linked almost wholly to higher consumption of spirits which accounted for around 29% of all alcohol sold in Scotland in 2007 (Scottish Government, 2008a).

Our levels of alcohol consumption are now the eighth highest in the world (Scottish Government, 2008b), over 1 million Scots are estimated to exceed weekly limits for consumption. For a country with a population of just over 5 million, there is an inevitable impact on health service costs which have been recently estimated at 268 million pounds (Scottish Government, 2010). Rising liver cirrhosis rates are part of this cost.

Liver processing of alcohol has been linked to the release of damaging chemicals, destructive free radicals or oxidizing agents, which initiate tissue damage. However, some of this harm can be mitigated by compounds called polyphenols. These are a diverse group of chemicals found in many common plant dietary constituents including alcoholic drinks which may counteract free radicals. In other words, they may act as antioxidants and so stem the pathological changes caused by cell damage (Duthie et al., 1998).

We set out to:

• Document the type and cost of drinks consumed by patients attending an out- or in-patient alcohol problems clinic in Edinburgh.

• Investigate the antioxidant content of the various alcoholic drinks reported by this group.

MATERIALS AND METHODS

A sample of patients (n = 377) with serious alcohol problems referred to the Alcohol Problems Services (NHS Lothian) was interviewed during 2008/9. We recorded the type and volume of drinks consumed, with brand names to allow accurate recording of alcohol by volume (ABV %), type of outlet where purchased and purchase price. We calculated the units consumed per patient per typical drinking week (1 unit being 8 g ethanol) and the mean price paid per unit.

The ‘antioxidant power’ of four spirit drinks, a blended and malt whisky and a low cost and a more expensive brand of vodka, was estimated using the FRAP (Ferric Reducing Assay of Plasma) method of Benzie and Strain (1996). The total polyphenolic content of the samples was estimated as gallic acid equivalents using the Folin’s method of Singleton and Rossi (1965). Each analysis was performed in triplicate, and each result is expressed in terms of the amount contained within one UK unit of each drink (8 g or 10 ml pure ethanol).

RESULTS

On average, each patient consumed 198 units of alcohol per week (210 for men, 172 for women). Overall, the drinks with the greatest single consumption were vodka and white cider (see Fig. 1). ‘White’ drinks (vodka, white cider, white rum and gin) accounted for 47% of all units consumed by this patient group in a typical drinking week (Fig. 2).

For all drinks consumed by the sample, the mean price paid for one UK unit of alcohol was 43 pence. For vodka, the mean price was less (38.6 pence), although a range of prices was paid (see Fig. 3). For the second most popular drink, white cider, the average price paid for 1 unit was even lower, 14.6 pence.

Among the vodka drinkers (n = 157), it is noteworthy that 31.2% (n = 49) of individuals consumed in excess of 168 units of vodka each week, i.e. equivalent to more than 1 unit of alcohol for every hour of a seven-day week.

Fig. 4 compares the alcohol unit costs of two vodka brands, a blended whisky and a malt whisky. Additionally, the four drinks are compared in terms of total antioxidant content (FRAP level) and one important antioxidant, polyphenols; levels of both are lower in each vodka sample compared to the whiskies.

DISCUSSION/CONCLUSIONS

Our data suggest that white drinks make a major contribution to the typical weekly intake of individuals who...
have suffered harm through their use of alcohol. Furthermore, a mean weekly consumption of 198 UK units must present a virtually constant challenge to the liver’s metabolic capabilities. Our findings that white spirit drinks contain lower levels of antioxidant, cyto-protective compounds relative to alcohol content, than amber drinks have led to the following proposal. We suggest that for these patients who consume alcohol rapidly (potentially made more likely through reduced price), the impact of alcohol on the cells of the liver may be more damaging when the drinks involved are ‘white’, i.e. have a lower content of protective antioxidant compounds. Poor nutritional status will likely exacerbate the situation. We do not know the relative bioavailability of the antioxidant compounds and not all may be available to limit the extent of damage in the hepatic cells; however, if correct, our proposal may also impact on the degree of risk experienced by those other drinkers who consume ‘white’ alcohol in a concentrated sessional (‘binge’) pattern. In summary, our contention is not that some drinks are safer than others, but rather that some drink types when drunk rapidly and in large amounts may be particularly damaging to the body.

Fig. 1. Units of alcohol consumed per week by all patients (n = 377) according to drink type.

Fig. 2. Percentage of alcohol consumed for different drink types for all patients.

Fig. 3. Number of units of vodka purchased at different prices.

Fig. 4. Comparison of content and price of spirit drinks.
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Conflict of interest statement. None declared.

REFERENCES


