CASE REVIEW

Suicide by alcohol overdose

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SUMMARY. Alcohol is the most often detected substance in the body of a person who has committed suicide. It may be used to reduce the last instinctive hesitations to taking one’s own life. Suicide is common in cancer patients. People with cancer-related depression often use alcohol as a means of coping but they very rarely use it in order to kill themselves through acute intoxication. However, a case of a cancer patient who committed suicide consuming two bottles of spirit was recently investigated and the conclusions are presented. The post-mortem cardiac blood and vitreous humor alcohol level was found to be 9.0 and 6.2 mg/ml respectively.

INTRODUCTION

Suicides and near suicides due to consumption of large quantities of ethyl-alcohol are quite uncommon in everyday medicolegal practice. Self-poisonings as suicidal attempts are mainly associated with drugs or pesticides. Acute intoxication and death following alcohol intake are classified typically as accidents, without any further question. People suffering depression often use alcohol as a means of coping, but they rarely use it in order to kill themselves. It is well known that an individual may become depressed because of having cancer and this may account for an elevated suicide risk.

However, it would appear that it is not only unusual but also very difficult to use alcohol as a means of committing suicide. Alcohol has been found to be present at levels varying from 0.5 to 4.0 mg/ml in the post-mortem blood samples from fatal poisonings due to carbamates. Most of these fatally poisoned humans were past or present psychiatric patients under medical treatment and the cause of death was ruled as suicide.

The following case report concerns an elderly Swedish male. He was one of 23 participants in a travelling group organized by a Social Service Organization in Sweden that had booked a trip to the Mediterranean. Fifteen of the group were former cancer patients, suffering from carcinoma of the larynx, all of whom had previously undergone laryngectomy. In order to speak, they used a special microphone to aid communication. The remainder of this group comprised of spouses plus a social worker.

The elderly male had arrived at his hotel in Crete at about 3:00 am. Two hours later, strange noises were heard from his room and the hotel clerk informed the social worker within the group. They tried to communicate with the man but got no response. About half an hour later, when they eventually managed to get into his room, they found him lying on the floor of the bathroom with the shower turned on and flooding the room. The room seemed otherwise perfectly normal with no apparent disorder of clothes or furniture. Two empty 1.5 litre bottles of whisky were found and there was a used glass that contained some remnants of a drink. In one corner of the room there was a plastic ‘duty free’ bag. When the doctor arrived, all he could do was to confirm the old man’s death. A Medical Examiner was then contacted.

The post-mortem examination revealed just one small contusion at the level of the man’s left knee. The external examination of the body revealed congestion of the face and the conjunctivae of his eyes.
autopsy revealed no other injury or lesions of recent organic disease, apart from congestion of the internal organs. There were no other specific findings. The stomach contained a lot of liquid, with the odour of alcohol. Toxicological analysis confirmed that the liquid in his stomach was ethyl-alcohol and his blood was found to contain an alcohol concentration of 9.0 mg/ml. Alcohol analysis was performed using headspace gas chromatography (HS G-C) and an immunoassay technique (fluorescence polarization immunoassay, FP1A). Alcohol was also detected in the stomach content and in tissue samples from the liver, lung and kidney. Vitreous humor alcohol level was 6.2 mg/ml. Extensive toxicological screening was performed on blood and urine autopsy samples for the detection of drugs and other poisonous xenobiotics. The results were negative.

In the middle of his neck, the typical scar of his laryngectomy together with the classical tracheostomy were present. Samples of the neighbouring tissues and nodes showed an infiltration of cancer cells. The laryngectomy had been performed 3 years ago and thereafter the old man had led a normal life apart from the usual restrictions resulting from the operation.

His daughter revealed that her father had recovered after the surgery and had lived quite normally until the last week before his trip. After a visit to the hospital he suddenly decided to join the travel group intending to go to the Mediterranean. He had never been this kind of trip before. His daughter reported that 15 years ago he had been divorced and had subsequently lived alone without any apparent problem until the cancer was diagnosed.

In the post-mortem investigation it transpired that 5 days prior to his death, during the first stop of their journey in Venice, something similar had happened. This information was obtained from the participants of the travel group. Upon arrival, immediately after moving into his hotel room, he had started drinking some whisky that he had bought during the trip. Someone who had happened to visit his room one hour later, found one of two whisky bottles empty and the other already opened. The man was intoxicated and in a bad condition, so he was rushed to hospital where he received treatment for 2 days. During the remainder of his stay in Venice he seldom left his hotel room. Although he could communicate quite normally, he seemed to be depressed all the time. The other members of the group described him as having been of low mood from the very beginning of their journey and that very rarely did he ever communicate with them. The events leading up to his death took place immediately after their arrival in Crete.

Contact with the physician in the hospital of his home country, where he had previously had his check up, revealed that his last examination had positively confirmed the recurrence of his disease and the results had been explained to him, one week before he left on his trip. He refused to follow any course of medical treatment against his cancer. His alcohol consumption prior to this had been quite normal. He was not an alcoholic. His doctor at the hospital in Sweden confirmed in addition that no antidepressant medication had been prescribed to him.

Taking into account the above facts, the conclusion of the medical examination was that the cause of his death was acute alcohol intoxication, occasioned intentionally to commit suicide. The conclusion was made as a result of the findings in the hospital, the previous event in Venice that was considered as an actual suicide attempt and the high concentration of alcohol in his blood. This concentration was in accordance with the large amount of whisky consumed. The possibility of using the alcohol as pain relief was also ruled out since the amount consumed and the time of consumption indicated no long term use of small or medium quantities but rather an acute and determined overdose.

DISCUSSION

There is a clear rise in suicide and parasuicide rates in Western societies. Studies on the epidemiology of suicide and parasuicide show that the distribution of suicidal behaviour varies according to sex, age occupation, climate and seasonal change and fluctuates in cycles over a number of years. Referring to Durkheim's classical formulation, Preti discusses the influence of social integration and social regulation on suicide rates in Italy. He proposes the hypothesis that the complex interactions among individuals and their relational networks and 'how and how much the needs and desires of an individual are fulfilled within the habits and laws of a given society' are important factors concerning the incidence of suicides and parasuicides in a given country.

According to the sociologist Raoull Naroll, who reformulated Durkheim's hypothesis in the 50s, a 'Suicidal Plan' could be put into effect in the situations resulting from the breakdown of important social ties or subsequent severe frustrations caused by third parties. In a previous paper reporting conflicting results, Lester came to the conclusion that the suicidal risk tends to increase with the improvement of the quality of life in a given nation. Trends in suicide rates indicate that improvements in the quality of life
in that nation seem to entail a worsening of the mental health therein, at least with regard to suicidal outcomes. Preti explains this finding suggesting a possible mediation between improvement in quality of life and suicide rates by genetic and biologic factors:

... in effect, a reduction of infantile mortality and better survival of individuals biologically predisposed to medical or mental illness causing invalidity, could result in an increase of the incidence of chronic illnesses and disorders that lead to invalidity in the general population, with a concomitant increment of associated behaviour (requests for medical help, expenditure for assistance, suicidal behaviour) ...11

As a result, Preti found that suicide rates in Italy showed a significant and positive relationship with separation and divorce rates, social security expenditures, Gross Domestic Product (GDP) per inhabitant, occupational rates and non essential consumption rates. Considering this connection is complex and intricate, he concludes that suicidal behaviour could be a specific characteristic of the affluent society.11

Death due to alcohol usually coincides with alcoholism and a continuing alcohol intake over the years, leading to organic damage and cellular lesion. This results in the common alcohol-related medical problems or diseases such as, among others, cirrhosis of the liver, alcoholic cardiomyopathy, impotence and accidents.

It is well documented that alcohol is the main cause of death in traffic accidents.15,16 Data collected in the USA in 1988 indicated that 49.6% of all traffic accident deaths were associated with drinking.16,17 Cimbura et al examined 1169 drivers and 225 pedestrians who had been involved in accidents in Ontario, Canada and found 57.1% of the drivers had blood alcohol levels of 0.1 to 4.1 mg/ml and 53.3% of the pedestrians had ethanol in their blood.18 Logan and Schwilke found similar proportions of alcohol or drugs involved in 52% of all fatalities occurring from single vehicle accidents.19 Similar results were obtained from our records concerning the driving under influence programme (DUI) in Crete.20

Alcohol in small concentrations is often found as a supporting substance in suicide cases as well as in homicides. Suokas and Longqvist found 62% of 1018 parasuicide patients who had recently consumed alcohol, of which 46% were female and 54% male,21 but the role alcohol actually plays in suicides is not that clear. Hayward et al designed a study to find answers to this question.22 They found blood alcohol levels of 0.05% or more in 47.8% of male suicides and 18.4% of female suicides in Western Australia. For 107 of the examined 293 suicide cases, blood and urine alcohol level had been readily available. Higher levels of alcohol in urine than in blood, with a relationship of approximately 1.3 to 1, suggested that in the great majority of cases alcohol had been consumed some hours before. Only in four instances had alcohol been consumed just before death.

Hayward suggests that, with regard to people that had been drinking for some time prior to death, it is possible that the depressing and disinhibiting effects of alcohol might have created an emotional state whereby they sought to take their lives. The disinhibiting effects of alcohol were combined with acute depression arising from distress due to an adverse life event, for example a recent loss of a relationship, and the absence of an attempt to seek professional help. Hayward found that 30% of alcohol positive suicides were receiving treatment from some form of professional source prior to their suicide.22 The author recommends that some impact could be made on suicide rates if these professional sources were alerted to the danger of alcohol consumption during depression. They could stress to their patients the need to avoid alcohol.

James reported that in cases where levels of blood alcohol had been higher than urine alcohol, the records indicated that the suicidal act had been committed either during, or in the early hours of the morning following a period of alcohol consumption.23 He explains this as the probable mental changes associated with, or following, alcohol intoxication which may lead to impulsive suicide in individuals who are predisposed to do so.

There are many other implications of alcohol in other situations like drug-abuse, rape and sexual assault and accidents at work. The relationship between suicide and alcohol can be seen in two ways:

- As a psychological and mentally organized tendency that lies in the person, in his/her view of life, leading to death ('long term suicide'). Thus, daily use of alcohol to avoid the reality and hardships of life, is used as a means of copining with problems the person is not able to handle in a more appropriate way.
- Alcohol is the most common central nervous system suppressive substance that is detected in medicolegal cases of suicides as opposed to parasuicides.6,24 Its role is mainly to reduce the last instinctive hesitation of taking one's own life.

From another point of view, acute alcohol intoxication usually happens unintentionally and/or by accident, during some heavy celebrations, excessive parties or by overestimating one's drinking capacity. Sometimes it occurs due to crazy bets between young people that are inexperienced with alcohol. The intake of alcohol as a means of committing suicide through acute intoxication is rare in medical practice. In the medicolegal literature or in psychiatric
reports, no similar instance could be found. In the present case, the vitreous humor:blood ratio (ratio = 0.68) suggests that the time elapsed between ingestion and death was probably no more than an hour. This fact additionally supports our conclusion that the acute alcohol overdose was intended and predetermined.

The case of the elderly male described previously shows clearly an explainable (reducible) way that a depressed person, under threat of his recurrent cancer, could try and actually succeed in committing suicide. Finally, we explained the suicide as a result of depression produced and established by the redevelopment of the cancer and the physical disability which grew in a social background of loneliness, retirement psychology and the realization of the end of life. Maybe he chose the Mediterranean area and the period of the autumn in a similar fashion to that in the film 'Death in Venice' from the story by Thomas Mann. The association of suicide with Durkheim's anomie could equally be seen.

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REFERENCES