Wine – bane or boon for the elderly

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Abstract: The American Geriatrics Society (1) and the National Institute on Alcohol Abuse and Alcoholism (NIAAA) (2) recommend that older adults who have no contraindications to alcohol use limit their intake to no more than one drink per day.
However, several studies have found that moderate alcohol intake is associated with lower mortality in older adults. In The Cardiovascular Health Study population, consumption of 14 or more drinks per week was associated with the lowest risk of coronary heart disease: Hazard Ratio's of 0.55 (95% CI, 0.34–0.91) for consumers of 14 to 20 drinks per week and 0.61 (95% CI, 0.34–1.11) for consumers of 21 or more drinks per week were found (3). Grønbæk et al found light-moderate alcohol consumption (1-27 drinks per week) associated with lower mortality in middle-aged and elderly men and women from Copenhagen. (4). In elderly men and women from Dubbo, Australia, moderate alcohol intake (1-28 drinks per week) appeared to be independently associated with a significant increase in life expectancy (5). In the middle-aged and elderly participants of the American "Cancer Prevention Study II" light to moderate drinking (1-2 drinks per day) slightly reduced overall mortality (6).

The obvious benefits of a moderate alcohol consumption call for a realistic evaluation of the risks of alcohol consumption beyond one drink per day in the elderly population. The National Institute on Alcohol Abuse and Alcoholism (NIAAA) classifies greater intake than one drink per day as at-risk drinking, in part because of the greater sensitivity of older adults to the physiological effects of alcohol. *The Dietary Guidelines for Americans* issued by the US Departments of Agriculture and Health and Human Services define moderate drinking for adults as no more than two drinks a day for men and no more than one drink a day for women. "Between the ages of 25 and 60, the proportion of total body weight represented by fat almost doubles in men and increases by 50% in women. As lean body mass diminishes and adipose tissue increases, the volume of total body water decreases. Because of the dramatic changes in body fat and lean body mass among men as they age, for older men no more than one drink a day is a more prudent definition of moderate" (7).

Chumlea et al presents data from a study sample of 274 men and 292 women between 18 and 64 years of age observed at regularly scheduled visits as long-term participants in The Fels Longitudinal Study between 1989 and 1996 (8). The findings of the study indicated that TBW volume, on average, maintains a reasonable degree of stability in men and women through a large portion of adulthood. The mean ratio of TBW to weight of participants in The Fels Longitudinal Study declined with age as a function of a decrease of fat-free mass (FFM) and an increase in body fatness. In men, the mean TBW/weight declined from approximately 58% at age 18 years to approximately 46% at age 64 years. In the women TBW/weight decreased from 48% at age 18 years to 43% at age 64 years.

A study of eleven men and 14 women aged 23-46 years and 10 men and 11 women aged 63-81 years confirmed the decrease of fat-free mass in older subjects: FFM in young men: 59.9 ± 8.9 kg; in old men 56.0 ± 6.5 kg; FFM in young women: 44.6 ± 2.5 kg, in old women 38.6 ± 5.8 kg (9). Even so the TBW volume was not significantly different in the young and old

subjects (TBW in young men: 41.1 ± 5.9 L; in old men 40.8 ± 5.8 L; TBW in young women: 30.2 ± 2.3 L, in old women 28.1 ± 3.2 L) due to a significantly higher hydration of fat-free mass in older subjects: TBW:FFM (%) in young men: 68.7 ± 4.0, in old men 73.3 ± 11.4; TBW:FFM (%) in young women 67.5 ± 3.1, in old women 72.5 ± 6.9.

Lucey et al studied the influence of age and gender on blood ethanol concentrations in 14 men and 14 women 21–40 years old and 14 men and 15 women ≥ 60 years old. All subjects were given ethanol (0.3 g/kg) on three occasions: orally after an overnight fast; orally after a standard meal; and by intravenous infusion after a standard meal. Blood ethanol average areas under the curve were significantly greater for ethanol given orally when fasted and IV ethanol when fed but not after ethanol orally in the fed state (10). Elderly men presented around 9-15% higher blood ethanol concentrations than younger persons when ethanol is taken without food, however, the effective peak blood ethanol concentration may be significantly higher for elderly women. The age and gender difference can be eliminated when ethanol is ingested with a meal.

Over the years, the moderate use of alcohol has been considered beneficial to older individuals, but what constitutes "moderate" depends on age, sex, genetic characteristics, and other factors. The balance of harm (alcoholism, liver disease, accidents, hypertension, hemorrhagic stroke, and some cancers) and benefit (a reduced risk of coronary heart disease, ischemic stroke, diabetes, and dementia) determines the weekly number of drinks associated with the lowest mortality and the highest quality of life in the older. Moderate consumption of alcohol carries risks and benefits. In two linked national cohorts (the U.S. Health and Retirement Study and the English Longitudinal Study of Ageing) , alcohol consumption in the disputed intake range of more than one to two drinks per day was not associated with greater risks of disability or mortality than the current U.S. recommended level of more than none to one drink per day for older people (11).

Because over-restrictive limits risk encouraging nihilistic responses or fruitless clinical effort, a review is needed of the evidence base for the lower hazardous drinking definitions for older adults without specific contraindications. Ian R. White and fellow statisticians from the London School of Hygiene and Tropical Medicine used data from non-Mediterranean cohort studies to estimate the relation between alcohol consumption and risk of death to find the level of alcohol consumption at which risk is least. Evidence based guidelines for sensible drinking (one unit = 9 g of alcohol) can be derived from the level at which risk is lowest if no more than a 5% increase in risk of mortality is considered acceptable. Women would be advised to limit their drinking to 1 unit a day up to age 44, 2 units a day up to age 74, and 3 units a day over age 75. Men would be advised to limit their drinking to 1 unit a day up to age 34, 2 units a day up to age 44, 3 units a day up to age 54, 4 units a day up to age 84, and 5 units a day over age 85 (12).

There is a tremendous heterogeneity within the group considered "elderly", and generalizations can be misleading. The age range of the group spans at least 40 years and includes people in their late sixties, who are still actively employed and in excellent health, as well as people over 100 years of age, who are more likely to be cognitively and physically disabled. Moreover, the aging process is characterized by marked individual variations. Physiologic ageing does not parallel chronologic aging, and it is physiologic ageing – such as the modest 10-15% reduction of total body water as humans age - that underlies age-related differences in the fate and action of alcohol (13).

In scientific terms the greatest risk is that what official health authorities like the National Institute on Alcohol Abuse and Alcoholism really mean by "elderly" is a well meaning but misguided attempt to envelop the major clinical issue of frailty into a term that applies to all older people. Frailty is an important factor in functional decline, morbidity, and mortality for some older people, and much progress has been made in defining the phenotype, risk factors, manifestations, and outcomes of frailty as a clinical syndrome. However, most older people are not frail, and the proportion of older people who are disabled is dropping (14).

Conclusions: With any medical advice there is risk and benefit. Caution should be exercised in framing guidelines for alcohol and they should be kept in the larger context of other favourable lifestyle factors, such as exercise and diet. No evidence has been found to suggest that non-drinkers should take up drinking. The importance of evidence based advice on alcohol use to the older is obvious, and with such advise to hand, each individual must decide whether or not to consume alcohol and, if alcohol is consumed, what level and pattern is appropriate. The relation between levels of drinking and all-cause mortality will vary depending on a person's underlying risk of various causes of death. The groups most likely to benefit from drinking small amounts of alcohol are older people at high absolute risk of coronary heart disease and ischemic stroke and at low absolute risk of injury, cirrhosis and other alcohol-related disease (15).

Most protection of health seems to be conveyed by a pattern of very regular and light drinking, however, health is only one aspect in this decision. Most people do not drink for health reasons, but for psychological and social benefits, since alcohol serves as a mood modifier, a relaxant, and a social lubricant. No one should be choosing to drink for medical benefits rather than enjoyment and pleasure. In conclusion older people should not be advised to drink for health, but rather to drink – moderately – to their health!

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