Alcohol and Testosterone Deficiency in People Who Experience Facial Flushes

Jungun Lee*

Department of Family Medicine, Wonkwang University Sanbon Hospital, Wonkwang University School of Medicine, Gunpo, Korea

Many Asians, including Koreans, have the inactive form of aldehyde dehydrogenase (ALDH), which inhibits the breakdown of acetaldehyde. When these people consume alcohol, acetaldehyde (a toxic substance) accumulates in the body, leading to a characteristic flush. Therefore, people who exhibit flushing after alcohol consumption are considered to have lower alcohol metabolism. Up to 50% of Asians, have the ALDH 2 gene mutation that causes the facial flushing response.

Koh et al. examined the relationship between alcohol consumption and total testosterone deficiency according to facial flushing in Korean men. Most previous studies have assessed the effect of alcohol on testosterone levels based on the amount of alcohol consumed, but few studies have considered personal differences in alcohol metabolism.

In that retrospective study, they revealed that the drinker groups that experienced flushing and consumed more than eight standard drinks per week (112 g of alcohol per week) had a 4.37 times higher risk of testosterone deficiency than the nondrinker group. Koh et al. examined the relationship between alcohol consumption and total testosterone deficiency according to facial flushing in Korean men. Most previous studies have assessed the effect of alcohol on testosterone levels based on the amount of alcohol consumed, but few studies have considered personal differences in alcohol metabolism.

Facial flushing is caused by acetaldehyde that accumulates within the body, which is enabled by an inactive ALDH2. For this reason, it is possible that the average level of testosterone was low, and the risk of testosterone deficiency increased only in the group that experienced flushing at a relatively low eight standard drinks per week in this study, compared to other studies. Some studies have reported that Koreans who develop a drinking flush have higher risks of hypertension, metabolic syndrome, diabetes mellitus, and have high rheumatoid factors and intraocular pressure even if they do not drink excessively. The authors recommended that the drinkers who experienced flushing should limit their alcohol intake to eight or less standard drinks per week.

Previously, Lee et al. investigated advantages and potential risks associated with drinking alcohol in Koreans based on the alcohol flush reaction. After a sophisticated review, they suggested that individuals with the flushing reaction should maintain an alcohol consumption level of half of that for non-flushers (≤four drinks/wk for men aged ≤65 years and ≤two drinks/week for >65 years old for flushers). Even though the study had limitations, such as a lower proportion of heavy drinkers and being a retrospective analysis, it implied the importance of individual alcohol metabolism in the analysis of the effects of alcohol consumption.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

ORCID

Jungun Lee: https://orcid.org/0000-0001-8580-1445

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