



Comparison of Lithium Levels between Suicide and Non-suicide Fatalities

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DESCRIPTION

Globally, more than 700,000 people commit suicide each year, and among persons ages 15 to 29 it is the fourth highest cause of death. The age-standardized suicide mortality rate has dropped since 1990, but the overall suicide rate has been rising. A mental disorder accounts for about 90% of suicides, although many persons do not receive any professional mental health care at the time of suicide. Even though there are multiple effective suicide prevention tactics, additional prevention measures are necessary.

A complex interaction of biological, psychological, and environmental elements results in suicide, which is a multifactorial occurrence. Dysregulation in stress response systems, notably the hypothalamic-pituitary-adrenal axis, was hypothesised as a cause of suicide despite the lack of clear evidence for its biological basis. Such dysregulation may have an impact on glutamatergic activity, neuronal plasticity, and downstream neuroinflammation. Few medications, such as lithium, antidepressants, clozapine, and ketamine, have been proposed as suicide prevention aids. Lithium has the strongest supporting data of all of them. In 1949, lithium carbonate was approved for the treatment of manic depression, and a meta-analysis of Randomised Controlled trials (RCTs) for mood disorders revealed lithium's ability to prevent suicide. Aggression and impulsivity may be affected by lithium's potential suicide prevention effects, although its underutilization may be related to commercial bias, a limited therapeutic window, and negative side effects.

Epidemiological studies have also demonstrated the preventive effect of micro-dose lithium against suicide. Lithium is mobilised by weathering processes and is carried into soils, from whence it is taken up by plants and enters the food chain. The human

digestive tract absorbs lithium, which is mostly eliminated through the kidneys. Higher lithium concentration in drinking water is connected with lower regional suicide rates, according to a meta-analysis of ecological research. However, the meta-analysis revealed a publication bias, and population-level studies should take the ecological fallacy into account. Few research at the individual level have come to a firm conclusion about the link between suicidal behaviour and lithium micro-dose. Lithium concentration in drinking water is connected with depressed symptoms but not suicidal thoughts in general teenagers, according to a semi-individual-level investigation. The serum lithium level is lower in people who have attempted suicide than in people who have not, according to a study done on adult patients who were transferred to an emergency room on an individual basis. In addition, a case study suggested that the concentration of lithium in the brains of suicide victims is marginally lower than that of non-suicide victims, and a different study found that the ratio of lithium concentration in the brain's white matter to grey matter differed between suicide victims and non-suicide cases. It is cleared that suicides had lower body lithium levels than non-suicides.

CONCLUSION

Uncertainty exists regarding the relationship between micro-dose lithium levels in the body and suicide deaths. The purpose of this investigation was to ascertain whether there were any differences in the body lithium levels between these groups. Lithium levels were lower in suicide victims than in non-suicide victims, indicating that even very little doses of lithium play a significant effect in suicidality. Clinical investigations looking at the impact of micro-dose lithium on suicide prevention will be significant next stages.

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