Human Suicide Study from Mathematical Approaches

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Abstract

Human suicide has a high human mortality (2% of human mortality worldwide). The mechanisms of action for drugs and clinical therapeutics remain to be established. The patho-therapeutic relationships between different causality and suicidal risks need to improve. To deal with the hot topic of suicide prevention and treatments by mathematical approaches seem revolutionary ideas. We hope this can lead to reduce human suicides in the future.

Key words: *Human genome; Human suicide; Mental disorder; Genetic diagnostics; Drug developments; Suicide prevention; Suicide treatments; Molecular target*

Introduction

Human suicide is the causality of a great number of human mortality (2% human mortality worldwide) [1], which is a common symptom of human depression and many other disease origins worldwide [1-8]. In order to reduce human suicide, some good examples and paradigms have been speculated and systematical investigated.

Causality of human suicide

The causality of human suicides can be diversified; several major risk factors are enlisted as;

Different types of human mental illness [9];

A history of past physical or psychiatric traumas [10];

Environmental/economical burden, pressures and influences [11];

Human genetic changes [1, 5-6, 12-14];

Current therapeutics shows some positive outcomes in suicidal/mental illness treatments [15].

Mathematical Study of Human Suicide

Given the fact that a lot of inherent/environmental factors can induce human suicide [8-14], suicide prevention and treatments are very difficult from great diversity of human suicide origins. Mathematical approaches can help to find these relations and focus on important matter. In the previous study, we give an equation of their possibilities [14].

$$P_{total} = P_{gene} + P_{drug} + P_{environment} \qquad (Eq\ 1)$$

In order to find the overlap of their interactions, we offer a new equation;

$$X = f\ (U_1, \cdots, U_k) \qquad (Eq\ 2)$$

X: Total suicide rates

U: Individual causality

Furthermore, it can be calculated in equation 3.

$$T\ (P_1, \cdots, P_n) = \theta\ (P_n) \qquad (Eq\ 3)$$

Overall, we believe that we can learn more after these computational calculation and statistics [16].

Animal models and studies	Optogenetics GEM
Clinical PG studies	Human metabolic enzymes, such as CYP2D6 Drug-active or drug-toxic genes (SNPs)
Genome-wide association studies (GWAS)	More than 10 genetic allels are discovered
Other biological systems	Molecular Bioinformatics

Table 1: *Brief outlines of current achievements relating to antidepressant therapies.*

Conclusion

There is no well-established ideology for suicide causality and treatment now. Several types of diseases and long-term physical handicaps, such as mental disorders are possible targets for drug intervention [1-8, 17-18]. In the future, modern diagnostics for suicide and treatments in the clinic must be strengthened and categorized. Increasing mandatory genetic/molecular/image diagnostic trials are required for advanced technology, including mathematical ones.

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