The Hypotheses for the Pathogeny of Drug-Induced Mania and Suicide

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Background
As for 2004, the US and European regulatory agencies began implementing verification programs to assess the influence on suicidal behavior from the use of antidepressants such as SSRIs [1-3]. With the increasing number of cases reported, several newly developed antidepressants were withdrawn from the market, although the mechanisms whereby these drugs can cause suicide remained unclear. It has been posited that some antidepressants may induce anxiety or mania, and thus their use should be cautious [1-3]. On the other hand, since it is possible that the side effects associated with use of these drugs may be individuals rather than all population, we hypothesize that genetic factor may account for drug-induced suicidal behavior [4]. Later, more and more clinical data correspond with our hypothesis [5].

The Presence of Anti-Microbial-Induced Mania
Abouesh’s reviewed [6] the phenomenon of rarely occurrences of spontaneous antimicrobial-induced mania. Late, more and more clinical evidence has repeated this phenomenon [7-9], and their mechanisms are still mysteries. It is very similar with our previous hypothesis for antidepressant [4]. Thus we hypothesize some drug-induced toxicological mechanisms and give further explanations.

Hypotheses of the Pathogeny of Drug-Induced Mania and Suicide
In particular, it is feasible that specific genetic polymorphisms affecting the function of the serotonin system (SERT) is associated with body anxiety, may decide the antidepressant-induced suicidal. Similarly, genetic mutations may exert an influence on the expression of a number of drug-metabolizing enzymes, such as the cytochrome P-450 enzymes that are responsible for the biotransformation of most antidepressants. Polymorphisms of genes controlling these enzymes could also be associated with the presence of various kinds of side effects, including violence and self-harm [10,11]. Future pharmacogenomics and whole-genome genetic association studies [12,13] especially on those that are involved in the biotransformation of drugs may be individuals rather than all population, we hypothesize genetic involvement in antidepressant-induced suicidal.

Future Trends
In the future, we can pinpoint more genetic polymorphisms and toxicological mechanisms to explain drug-induced neural toxicity from different angles [14,15]. It is an important area for us to study and shed new light.

References

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