

## Suicide Attempt by Ingestion High Doses of Risperidone, Citalopram and Paracetamol

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### ABSTRACT:

Suicide attempt by ingestion high doses of risperidone, citalopram and paracetamol

Prediction and recognition of deliberate self harm is one of the most significant problems that mental health professionals face almost on a daily basis. Multiple drugs, especially prescribed psychotherapeutic medications are often used for committing suicide. Death may occur due to serious pharmacological interactions. Although selective serotonin reuptake inhibitors are relatively safe and frequently prescribed drugs, risk of death due to lethal interactions increase by simultaneous intake of two or more drugs with suicidal intention. This article reports a case that survived after a suicide attempt with high doses of risperidone, citalopram and paracetamol ingested together. Mental health professionals should be careful in prescribing medication to patients with paranoid features especially during depressive episodes to avoid any risk of suicide.

**Key words:** suicide, risperidone, citalopram, paracetamol, drug interactions

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### INTRODUCTION

Psychiatric disorders have a well-established link with suicidal behavior. Suicidality is considered a diagnostic feature of depression in DSM-III-R, and suicidal thoughts, suicide attempts, and completed suicides have been associated with a variety of mental disorders, including schizophrenia, alcoholism, and anxiety disorders, and with borderline and antisocial personality disorders (1).

Suicide is the most devastating possible outcome of schizophrenia (2). The risk of suicide in schizophrenia is high; it is estimated that 10%-13% of all persons suffering from schizophrenia commit suicide (3,4,5). Suicide rates vary among mortality studies, between 147 and 750 per 100,000 persons with schizophrenia per year (6).

There are many studies suggesting a relation between the intensity of hopelessness and a history of suicidal behavior (7).

Clinicians must always be aware of the risk that a psychiatric patient may use the prescribed psychotherapeutic medication in an overdose in an attempt to commit suicide (8). Many people, attempting suicide, take more than one drug or substance which may increase the death risk due to lethal interactions. Frequently, high doses of psychoactive substances that are used for the treatment are ingested and serious, unexpected toxic pharmacologic interactions can occur.

Although SSRIs are relatively safe drugs, they occasionally can be associated with severe toxic drug reactions and even death. One of the most common causes of severe adverse drug reactions and death among patients on SSRIs is drug interactions (9). Several cases of citalopram overdose have been reported. Patients who ingested more than 600 mg citalopram showed ECG changes with widened QRS complexes (10). Generalized convulsions occurred in

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6 out of 18 patients at doses above 600 mg citalopram. None of the overdoses were fatal (11,12). Two deaths associated with citalopram alone resulted after ingestion of 3920 and 2800 mg (13).

According to our knowledge this is the first report that describes a case survived after a suicide attempt with high dosages of risperidone, citalopram and paracetamol.

## CASE REPORT:

Ms. K., a 38 year old woman with a history of paranoid schizophrenia according to DSM-IV criteria, was taking risperidone 4 mg/day and 20 mg/day citalopram due to depressive symptoms including feelings of emptiness, sadness and suicidal ideation. After feeling guilty about being a burden for her daughter, she was overcome by extreme suicidal ideation and swallowed a total of 1120 mg citalopram (fifty six 20 mg tablets), 160 mg risperidone (eighty 2 mg tablets) and 1500 mg paracetamol.

She was brought to emergency unit by her parents. There was approximately three hours between ingestion and medical treatment. In her initial examination she was conscious, orientation to time, person and place was intact and she could cooperate. Her blood pressure was 100/40 mmHg and heart rate was 120 bpm. Score on Glasgow Coma Scale was 15 points. Gastric lavage, active charcoal administration, parenteral hydration with 1500 cc %0.9 sodium chloride solution, electrocardiographic and biochemical monitoring were performed. ECG and laboratory findings were within normal ranges. Two hours later she became stuporous and transferred to intensive care unit for observation and supportive treatment. Biochemistry, ECG and arterial blood gases findings were still normal. Diastolic blood pressure was low. Twelve hours later, after iv administration of 1000 cc isotonic sodium chloride solution and 500 cc %5 dextrose solution, she completely improved. She was hospitalized for 48 hours. No late symptoms appeared. Before externalization psychiatric consultation was requested. Necessity to arrange psychiatric hospitalization due to suicidal ideation was assessed. She was still depressed, but she did not express suicidal ideation. In order to proceed with further

diagnosis and therapy, admission to the psychiatry clinic was recommended. After discharge, she admitted to a psychiatrist on a voluntary basis. She responded favorably to psychotherapeutical and pharmacological treatment.

## DISCUSSION:

In this case, we report a severe deliberate self harm with very high combined doses of risperidone, citalopram and paracetamol. We especially emphasize the importance of monitoring patients closely that have high suicide risk. Clinicians should be careful for lethal toxic drug interactions.

The prevalence of schizophrenia among unselected persons who committed suicide has varied from 2% to 12% (14). The rate is consistently higher among men than women, but some studies have shown a higher standardized mortality ratio for women (15). Comorbid depressive symptoms, alcoholism, previous suicide attempts, and communication of suicidal intent have been associated with suicide risk (16). Beck et al have emphasized the importance of depression and hopelessness as causal factors in suicidal behavior. Specifically, their theory states that greater depression and hopelessness are associated with greater suicidal potential and that hopelessness acts as a cognitive mediator of the relationship between depression and suicidal behavior (17).

Deliberate self harm still remains a big problem. In our case the findings are consistent with some of the literature. The patient's diagnosis was schizophrenia and she was hopeless with remarkable depressive signs and symptoms. Suicide risk extremely increased. She had to be followed closely with appropriate medication.

Physicians prescribing psychoactive substances need to consider drug-drug interactions and carefully monitor the patients with the suicidal ideation. Controlled studies and case reports indicate that risperidone has a low potential for metabolic drug interactions. Drugs that inhibit or induce cytochrome P450(CYP)2D6 or CYP3A4 may alter risperidone plasma concentrations, but the clinical significance of such interactions seems to be minimal (18). Risperidone is extensively metabolized in the liver by cytochrome

P450 (CYP) isoenzymes (19). The principle metabolites in humans are 9-hydroxy-risperidone and 7-hydroxy-risperidone. The 9-hydroxy metabolite is the predominant metabolite in urine and accounts for more than 32% of the administered dose (20). The 7-hydroxy metabolite accounts for an additional 5%. The 9-hydroxy metabolite also predominates in plasma. It seems to be equipotent with the parent drug as an antipsychotic compound in terms of dopamine receptor affinity (21). Overall, the metabolic profile of risperidone suggests that coadministration of drugs that inhibits CYP2D6 would change the concentration ratio of risperidone to 9-OH-risperidone but have minimal effect on the drug's pharmacodynamic effects (18). The effect of citalopram on the steady-state plasma concentrations of risperidone and clozapine was assessed in 15 patients with schizophrenia who had residual negative symptoms (22). There were no significant changes in the plasma concentrations of either drug or their active metabolites, suggesting that citalopram did not affect their metabolism. Because citalopram is a relatively weak in vitro inhibitor of CYP2D6, compared with fluoxetine, paroxetine or sertraline; it has less propensity than other SSRIs for metabolic interactions with antipsychotic drugs (18). A generalized convulsion is the most common serious

symptom of citalopram intoxication. Rhabdomyolysis with concomitant kidney failure may appear secondary to prolonged unconsciousness (23). Serious symptoms may appear above 600 mg which exceeds the therapeutic dose 15-30 times. The serotonin syndrome in cases have been described in patients who combined a MAOI with a SSRI or ingested two different SSRI preparations (23).

Herein there was no such adverse reaction despite ingestion of 1120 mg citalopram. There are papers reporting survival after risperidone intake up to 300 mg doses. In our case 160 mg risperidone was ingested. Due to weak drug interaction between citalopram and risperidone and very low dosage of ingested paracetamol; drug plasma concentrations could not reach to doses which may lead to death.

This case shows us that suicide risk should be taken seriously in paranoid schizophrenic patients especially in depressive episodes. Drug overdose as a way of committing suicide should be always considered and clinicians should be careful in prescribing drugs that have a lethal potential in overdose. Risperidone and citalopram, which are used together at moderately high doses may be safe, but they also have some toxic properties and careful clinical care is necessary.

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