

# Severe quetiapine voluntary overdose successfully treated with a new hemoperfusion sorbent

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## Background

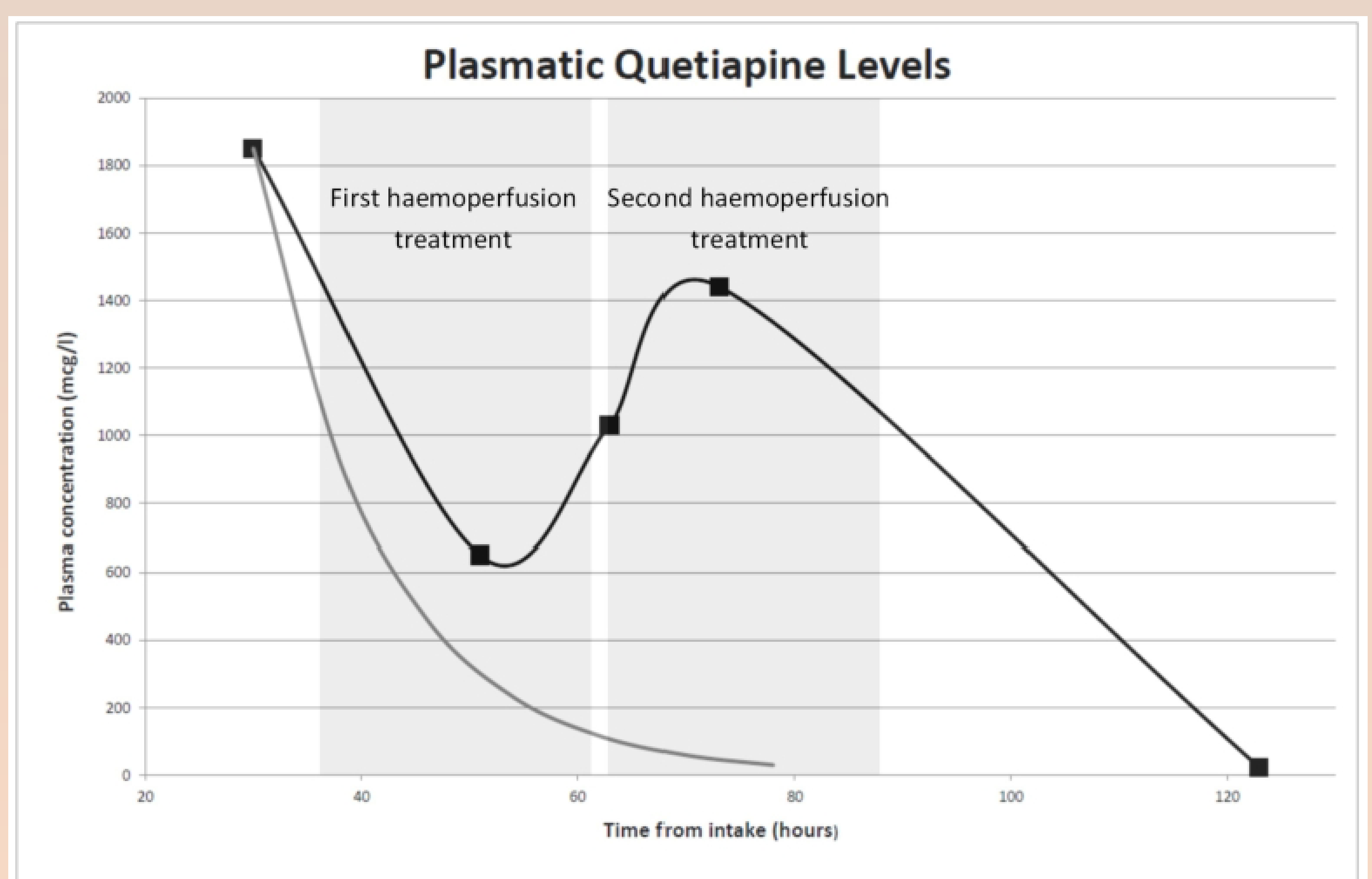
Quetiapine is a second-generation antipsychotic drug with clinical efficacy in the treatment of schizophrenia, bipolar disorder, major depressive disorder, and generalized anxiety disorder. Quetiapine overdose, although rare, is mainly linked with tachycardia, QTc-prolongation, somnolence, coma, hyperglycemia, and eventually hepatotoxicity and myocarditis. Extracorporeal techniques for quetiapine removal might be helpful, but only few cases have been reported in literature. In this case report we intended to accelerate quetiapine elimination by applying the hemoadsorbent Cytosorb, able to adsorb hydrophobic substances of molecular weight up to 55 kDa directly from blood, like inflammatory mediators and other endogenous molecules, such as bilirubin and bile acids. Indeed, CytoSorb has also demonstrated to efficiently remove in vitro some drugs, including quetiapine, thanks to its structure.

## Methods

Here, we describe the case of a 27-years-old healthy woman, admitted to our Intensive Care Unit (ICU) after voluntary quetiapine intake and successfully treated with Cytosorb hemoperfusion in combination with CRRT, in order to accelerate quetiapine elimination. The patient, on admission, showed sinus tachycardia and undergone a diuretic therapy with crystalloid hydration, gastrolisis, charcoal and laxative administration. 24 hours after consumption, the quetiapine plasma concentration was 1850 µg/L. Then, we decided to perform hemoperfusion combined with Cytosorb treatment to reduce the high plasma concentration. We started a Cytosorb treatment in combination with a citrate-based hemodiafiltration treatment CVVHDF for 48 hours, and the cartridge was changed every 24 hours, during which serum quetiapine levels have been measured.

## Results

After 12 hours, a good elimination of quetiapine from 1850 µg/L to 648 µg/L has been registered. Later on, an increase of quetiapine in blood concentration has been observed. We decided to continue with another treatment with Cytosorb combined with CVVHDF. Finally, the patient was extubated 96 hours after the start of hemoperfusion in hemodynamically stable condition and mild tachycardia. She has been discharged to the Semi-Intensive Care Unit after 7 days in a clinically stable condition.



## Conclusion

This is the first clinical experience of the potential application of hemoadsorption therapies, as Cytosorb sorbent, in large overdoses of quetiapine. This approach might be feasible to rapidly remove the substance from blood, stabilizing the patient condition. More in vivo experiences are required in order to understand the behavior in the light of the extensive volume of distribution of this substance.