Cardiological changes during antidepressant treatment with SSRIs compared to other classes of antidepressants

A drug surveillance report of German speaking countries between 1993-2010.

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OBJECTIVES

Psychotropic drugs potentially cause numerous cardiological side effects. One of the most severe cardiological adverse event represents a lengthening of the QT-interval, potentially leading to a ventricular arrhythmia called torsades de pointes (TdP). Psychotropic drugs, especially antidepressants, are known to have electrophysiological properties of prolonging ventricular repolarisation, and might therefore leading to TdP. During the last decades, antidepressants, first of all tricyclic antidepressants, have been revealed as possible origin of QT-interval prolongation.\(^1\) Selective serotonin reuptake inhibitors (SSRIs) have also shown a higher risk of QT-interval prolongation during this therapy.\(^5\) Following that, the U.S. Food and Drug Administration (FDA) and the European Medicines Agency (EMA) stated restrictions for the prescription of e.g. citalopram.\(^5\) This report aims to reveal cardiological side effects, especially QT-interval prolongation, which occurred during therapy with different classes of antidepressants in clinical practice using data from the continuous pharmaco-vigilance programme "Arzneimittel sicherheit in der Psychiatrie" (AMSP).\(^7\)

METHODS

This descriptive analysis was based on data from AMSP, a continuous pharaco-vigilance programme, proceeded in Germany, Austria and Switzerland. Any severe adverse drug reactions (ADRs) during psychotropic drug treatment have been monitored during inpatient treatment between 1993 and 2010. In total 362,577 patients have been monitored in 80 different hospitals. ADRs were assessed by experienced psychiatrists using a standardized questionnaire. After re-examination of ADR data, the probability for severe ADR was rated. Possible (grade 1), probable (grade 2) and definite (grade 3) severe ADRs were included in this analysis. Severe ADRs have been defined as (potentially) life-threatening or seriously endangering patient's health, considerably impairing everyday function, or requiring the patient's transfer to another department or ward providing more intensive care.\(^6\) The following cardiovascular side effects, especially QT-interval prolongation, were included into the analysis: cardiac failure, collapse, hypotension, hypertention, arrhythmias (bradycardia, tachycardia atrial flutter, AV-block II° or III°, prolongation of heart rate corrected QT-interval - more than 500 ms or increase of more than 25%, ventricular arrhythmia).

RESULTS

Among the 362,577 patients who have been monitored during 1993 to 2010, 169,278 patients were treated with antidepressants. 191 cases of severe cardiovascular ADRs were recorded, whereby antidepressants were imputed alone or in combination with other drug groups (see table 1.). Only 64 cases (incidence rate of 0.04%) of severe cardiovascular ADRs were identified in which antidepressant treatment was imputed alone for the ADR. Only 7 patients (incidence rate of 0.01%) have shown cardiological side effects attributed to SSRI alone. Incidence rates of severe cardiovascular ADRs during different antidepressant compounds are given in figure 1. Regarding arrhythmias, tachycardia was the most recorded ADR during antidepressant treatment. QT-interval prolongation was only detected in 18 cases. No QT-interval prolongation was found where SSRI treatment was imputed alone for this ADR (see figure 2.).

CONCLUSION

The results of several case reports proposed QT-interval prolongation during SSRI therapy. This AMSP analysis of data in a clinical setting did not show any increased incidence of QT-interval prolongation during SSRI treatment compared to other antidepressants. Furthermore, this clinical data confirm that severe cardiological side effects such as QT-interval prolongation may be more likely during the treatment with tricyclic antidepressants. Hereofore, SSRIs have been considered as compounds with a low rate of cardiological side effects. Therefore, cardiovascular ADRs during SSRI treatment might be under-represented in this study due to methodological limitations (e.g. infrequent ECG monitoring). However, the restrictions in prescription of SSRIs, stated by the FDA and the EMA, should be reconsidered.

DISCLOSURE STATEMENT

No potential conflict of interest.

REFERENCES