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Title: A naturalistic study of outcomes with olanzapine long acting injection

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Sponsor: Canterbury Medical Research Foundation

Introduction:
Medication non-adherence is a common and difficult challenge to overcome in the treatment of schizophrenia. Non-adherence can lead to more frequent relapse, an increased hospitalisation rate and a lower quality of life. The introduction of long acting injectable medicines, such as olanzapine long acting injection (OLAI), has offered a solution through improved adherence as well as consistent dosage. Long acting injections are a slow releasing drug formulation administered every few weeks in a controlled clinical setting where non-adherence can be rapidly identified and overcome.

OLAI was first funded in New Zealand in July 2011. OLAI is licensed for the treatment of acute and chronic schizophrenia. It is important to note that OLAI has been shown to be just as effective as oral olanzapine, there are significant metabolic side effects associated with this medication. These include weight gain, diabetes and cholesterol abnormalities. In addition, OLAI is a considerably more expensive treatment option and requires administration by trained personnel as well a post injection monitoring period of 2 hours.

To date, there have been few studies published that provide insight into the long term use of OLAI in a real world setting.

Aim:
The primary aim of this study was to determine whether OLAI reduces the risk of relapse in patients with schizophrenia using days in hospital and admission rates as a marker.

Impact:
This will help us to determine the appropriate use for OLAI in the real world setting as well as informing us on how effective this medication is at reducing relapse.

Method:
Patients that were started on OLAI between July 2011 to September 2015 were identified from Hillmorton Hospital pharmacy dispensing records. We carried out a retrospective mirror image study using these patients.

Demographic and clinical characteristics were collected through electronic clinical notes available on the electronic health patient database, Healthlinks. These included age, gender, primary diagnosis and length of treatment.

Primary outcome data was collected for the 12 months prior to the initiation of OLAI and the 12 months following initiation. This included the legal status of each individual (i.e. voluntary treatment or compulsory treatment under the Mental Health Act (MHA)), the number of admissions into hospital, and the total number of days spent in hospital.

Results:
149 patients were started on OLAI between July 2011 and September 2015, of which four were excluded due to incomplete records. Of the remaining 145 patients, 92 (63%) were female. The patients' age ranged from 19 to 75 years old, with an average of 36 years. 51 (35%) patients had a primary diagnosis of schizophrenia, while 47 (32%) had bipolar disorder, 25 (17%) had schizoaffective disorder, 16 (11%) had psychotic disorder and the remaining 6 (4%) had other diagnoses.

Out of the 145 patients, 60 patients (41%) continued treatment with OLAI for 12 months while the remaining 85 (59%) terminated treatment with OLAI before 12 months. The average length of treatment was 176 days.

At the time of writing, primary outcome data was available for 135 patients. A preliminary analysis was conducted using this available data. For these patients, the average number of day spent in hospital during the 12 months before starting OLAI was 31 days, and the average number of days spent in hospital during the 12 months after starting OLAI was longer at 45 days. The average number of admissions into hospital before starting OLAI was 2 admission, which contrasted an average of zero admission after starting OLAI. The average number of days spent under the MHA before starting OLAI was 107 days, compared to 347 days after starting OLAI.

For those patients who completed 12 months on OLAI, the average number of days spent in hospital during the 12 months before starting OLAI was 42 days, which is similar to the 49 days during the 12 months after starting OLAI. The average number of admissions into hospital before starting OLAI was 2 admission and zero admissions after starting OLAI. The average number of days spent under the MHA before starting OLAI was 139 days and was longer at 365 days after starting OLAI.

Conclusion:
Patients treated with at least one dose of OLAI experienced a significantly increased number of days in hospital but significantly fewer admissions into hospital during the 12 months following their first dose. However those treated for a full 12 months experience no significant change in hospital days and significantly less admissions. In addition it appears that initiation of OLAI was associated with more days under the MHA.
As most patients did not complete 12 months on OLAI this may limit expectations of its usefulness in this population. We can conclude that treatment outcomes in a real world setting are less impressive to outcomes in a clinical trial.