Schizophrenia Treatment Physician Order: New Initiatives at the Mental Hospital of Ministry of Health in Saudi Arabia

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Abstract
The general administration of pharmaceutical care at the Ministry of Health in Saudi Arabia has released several pharmacy practice programs. The national pharmacy psychiatric program was one among them. This program has been established for the psychiatric management with an emphasis on schizophrenia. The guidelines in this program have been implemented in the form of a physician order form. This form consists of the best therapeutic choice for the conventional type of schizophrenia, or schizophrenia with comorbid disease. The schizophrenia guidelines have been approved by the medical staff and have been implemented at the hospital. This type of management of schizophrenia will prevent drug-related problems and improve clinical outcome of the patients. It is the first new initiative project at the Ministry of Health and in the Middle Eastern countries.

Key words: Schizophrenia Treatment, Physician Oder, Ministry of Health, Saudi Arabia.

INTRODUCTION
The psychiatric healthcare services are well established in the Kingdom of Saudi Arabia.1–3 The pharmacy administration at the Ministry of Health has released several pharmacy practice programs including national pharmacy psychiatric program. This program consists of several elements including but not limited to the drug information services, medication safety programs, ambulatory care services, and evidence-based pharmacy guidelines. The pharmacy administration has shared information with the evidence-based healthcare center in Saudi Arabia and has published several guidelines with respect to the clinical practice in Saudi Arabia.4 Al-Amel Medical complex has established therapeutic guidelines as the physician order form. It was first hospital in Saudi Arabia implemented this model of the guidelines. Several publications have shown the benefit of psychiatric treatment guidelines worldwide.5–7 However, there is a scarcity of information regarding the psychiatric management guidelines in Saudi Arabia, Gulf, and Middle Eastern countries. Therefore, in this mini-review, we aimed to explore the new initiative’s project on schizophrenia management physician order at Al-Amel Medical complex in Riyadh, Saudi Arabia.
Schizophrenia Therapy order in Saudi Arabia

The schizophrenia physician order form consists of patient’s demographic data, the type and stage of the disease, the first line of treatment used, the dose and duration of the therapy, and the second line of treatment if used. Followed by the comorbid disease with the primary disease with the appropriate choice for each combined disease. The prescription data and clinical pharmacist’s data are recorded in the physician order form. The form can quickly be converted to an electronic format in the computer pharmacy system (Appendix 1).

SWOT Analysis

In this mini-review, we performed a Strengths, Weakness, Opportunities, and Threats (SWOT) analysis on the project data. Following were the strong points of the project: clinical pathway of psychiatric management, educational tool for new staff, fits the accreditation and requirements of accreditation boards and healthcare institutions, it controls hospital formulary, and prevents misuse of medications. The order forms did not cover all psychiatric diseases and all antipsychotic medications. The opportunities points were part of accreditation requirements and threads points were not followed by healthcare staff, the new updating of the therapeutic guidelines.

Implementation Steps of Schizophrenia Management Physician Order

It is evidence-based setting up of psychiatric therapeutic guidelines at the most prominent mental hospital at the Ministry of Health in the Kingdom of Saudi Arabia. The guidelines are based on the recommendations of the American psychiatric society. It is designed by the pharmacy task force team and is headed by the author. The team consists of the head of the pharmacy, drug information pharmacist, four clinical pharmacists at acute and ambulatory care services and medications safety office, and inpatient and outpatient supervisor. The team is divided into three groups. Each group has different therapeutic management guidelines for common disorders such as depression, schizophrenia, and bipolar disorder. The first draft has been completed by the teams which covers physician order format by the first author. The therapeutic physician order has been revised by the three groups. The team has made several changes and discussion to reach the final agreement. The head of the pharmacy team submits the form to the pharmacy and therapeutic management teams for a final approval. The psychiatric therapeutic physician order is approved by the committee after several rounds of discussion and meeting. The guidelines are implemented through several educational sessions with the hospital staff. The manual physician order is then sent to the information technology team to convert it into an electronic format.

CONCLUSION

The schizophrenia management physician order is a new initiative in the Middle Eastern countries including the Kingdom of Saudi Arabia. This system is expected to improve patient outcome, prevent medication errors, and reduce the economic burden in Saudi Arabia.

ACKNOWLEDGEMENT

None.

CONFLICT OF INTEREST

None.

ABBREVIATIONS

KSA: Kingdom of Saudi Arabia; MOH: Ministry of Health, SWOT: Strengths, Weakness, Opportunities, and Threats

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## Adult Schizophrenia management (1)(2)(3)

### General Schizophrenia

| Condition | Dose   | Therapy      | Comments                                                                 |
|-----------|--------|--------------|--------------------------------------------------------------------------|
| 1st choice| 1...... | Amisulpride  | Starting dose 50-100 mg, Maintenance dose 400-800 mg, Maximum dose 1200 mg in two divided doses OR |
|           | 2...... | Olanzapine   | Starting dose 5 mg, Maintenance dose 5-20 mg, Maximum dose 20 mg once daily |
| 2nd choice| 1...... | Risperidone  | Starting dose 2-4 mg, Maintenance dose 4-8 mg, Maximum dose 16 mg in two divided doses |
|           | 2...... | Paliperidone | Starting dose 6 mg orally once daily; Maintenance dosage 3 to 12 mg/day; may increase by 3-mg/day increments, and increases above 6 mg/day should occur only after clinical reassessment and at intervals of more than 5 days; Maximum dose 12 mg/day OR |
|           | 3...... | Quetiapine   | Initial: 25 mg twice daily; increase in increments of 25 to 50 mg divided 2 to 3 times daily on days 2 and 3 to a range of 300 to 400 mg daily in 2 to 3 divided doses by day 4. Further adjustments as needed at intervals of at least 2 days in increments of 25 to 50 mg twice daily; Usual dosage range: 150 to 750 mg daily; Maximum dose: 800 mg daily |
| 3rd choice| ....... | Haloperidol  | Starting dose 2-5 mg, Maintenance dose 2-10 mg, Maximum dose 30 mg in one to three divided doses |

### Resistance Schizophrenia

| Condition | Dose   | Therapy | Comments                                                                 |
|-----------|--------|---------|--------------------------------------------------------------------------|
| 1st choice| ....... | Clozapine | Starting dose 12.5 mg orally 1 to 2 times daily and continue with daily increases in increments of 25 to 50 mg/day, as tolerated, to achieve target dosage of 300 to 450 mg/day (in 2 to 3 divided doses) by the end of 2 weeks; Maximum dose 900 mg in one to two divided doses |
### Poor compliance Schizophrenia

| Condition | Dose          | Therapy                  | Comments                                                                                                                                                                                                                       |
|-----------|---------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1st choice| .............. | Risperidone Consta       | Establish tolerability to oral risperidone prior to initiation of treatment with the risperidone long-acting IM injection. Initial, 25 mg IM every 2 weeks; oral risperidone or another antipsychotic medication should be given with the initial injection, continued for 3 weeks, and then discontinued; maintenance, dose may be increased to 37.5 mg or 50 mg IM, with adjustments made not more frequently than every 4 weeks; clinical effects of dose adjustment should not be expected earlier than 3 weeks after any dose change; **Maximum dose 50 mg IM every 2 weeks OR** |
| 2nd choice| .............. | Paliperidone palmitate   | Prior to initiation of monthly IM paliperidone, for patients naive to oral paliperidone or oral or injectable risperidone tolerability should be established with a test dose of oral paliperidone or oral risperidone. Previous oral antipsychotic regimen can be gradually discontinued at the time of initiation of monthly IM paliperidone. **Starting dose 150mg on day 1, then 100 mg on day 8, then Maintenance dose 150mg every month** **Maximum dose 150mg every month OR** |
| 3rd choice| .............. | Haloperidol decanoate    | -Stabilized on low daily oral haloperidol doses (up to 10 mg/day), 10 to 15 times previous daily oral dose IM monthly or every 4 weeks; initial doses greater than 100 mg should be administered in 2 separate IM injections 3 to 7 days apart  
-Stabilized on high daily oral haloperidol doses, at risk of relapse, or are tolerant to oral haloperidol: 20 times previous daily oral dose IM for the first month, then 10 to 15 times previous daily oral dose IM monthly or every 4 weeks; initial doses greater than 100 mg should be administered in 2 separate IM injections 3 to 7 days apart **Maximum dose 300 mg every 4 weeks** |

### Schizophrenia with chronic diseases

| Condition                     | Dose         | Therapy     | Comments                                                                                     |
|-------------------------------|--------------|-------------|-----------------------------------------------------------------------------------------------|
| QTC Prolongation              | 1.............| Aripiprazole| **Starting dose 10-15mg, Maintenance dose 10-15mg,** **Maximum dose 30mg once daily OR**       |
|                               | 2.............| Paliperidone| **Starting dose 6 mg orally once daily; Maintenance dosage 3 to 12 mg/day; may increase by 3-mg/day increments, and increases above 6 mg/day should occur only after clinical reassessment and at intervals of more than 5 days; Maximum dose 12mg/day** |
| Extra pyramidal symptoms (EPS)| 1.............| Olanzapine  | **Starting dose 5mg, Maintenance dose 5-20 mg Maximum dose 20 mg once daily OR**               |
|                               | 2.............| Quetiapine  | **Initial: 25 mg twice daily; increase in increments of 25 to 50 mg divided 2 to 3 times daily on days 2 and 3 to a range of 300 to 400 mg daily in 2 to 3 divided doses by day 4. Further adjustments as needed at intervals of at least 2 days in increments of 25 to 50 mg twice** |
| Condition | Medication | Starting Dose | Maintenance Dose | Maximum Dose |
|-----------|------------|---------------|------------------|--------------|
| Hyperprolactinaemia, Sexual dysfunction | Aripiprazole | **Starting dose** 10-15, **Maintenance dose** 10-15, **Maximum dose** 30 mg once daily | OR | |
| Diabetes, sedation, weight gain, High cholesterol level, dyslipidemia, & postural hypotension | Aripiprazole | **Starting dose** 10-15, **Maintenance dose** 10-15, **Maximum dose** 30 mg once daily | OR | Amisulpride | **Starting dose** 50-100 mg, **Maintenance dose** 400-800 mg, **Maximum dose** 1200 mg in two divided doses |
| Renal impairment | Olanzapine | Dose 5 mg a day | | |
| Hepatic impairment | Haloperidol | Dose 2-6 mg a day | OR | Amisulpride | No dosage adjustment required if renal function is normal |

**NOTES:**

Physician/Clinical Pharmacist Name: ____________________________  pager:________________________

Physician/Clinical Pharmacist signature: ____________________________

Nurse name: ____________________________  Nurse signature: ____________________________

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