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Original Research Article

Utilization of drug in patients admitted with abnormal uterine bleeding in a tertiary care teaching hospital

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ABSTRACT

Background: The objective of the study was assessing utilization of drug in patients admitted with Abnormal Uterine Bleeding in a tertiary care teaching hospital.

Methods: The observational study was conducted at Department of Obstetrics and Gynecology, Rajah Muthiah Medical College and Hospital, Annamalai University, Annamalai Nagar, Tamil Nadu, from the period of July 2019 to September 2019. A total 30 gynecology patients were included.

Results: A total 30 patients most of the patients were between the age groups of 36-45 years 66.6%. The most common clinical condition AUB and co-morbidities condition were 19 (63.3%). The majority of patient were prescribed with ferrous sulfate 27 (90%). The defined daily dose (DDD) per patient for norethisterone 36 followed by ferrous sulfate 23.11. The average number of drugs per prescription 10.8, percentage of drug prescribed in generic name 69.56% and number of drugs prescribed from NLEM-2015 86.95%, number of drugs prescribed from EDL-2019 were 69.56% and percentage of prescription with antibiotic 80%, percentage of prescription with injection 70%.

Conclusions: This study has shown the utilization of drugs prescribed in AUB patient. The most commonly prescribed drug was ferrous sulfate and most prescribed antifibrinolytic drug was tranexamic acid for treating AUB.

Keywords: DDD, AUB, Drug utilization, Anti-fibrinolytic drugs

INTRODUCTION

Menstrual disorders are the most common gynecologic conditions in the general population. Abnormal uterine bleeding (AUB) mean both heavy and irregular menstrual bleeding, and many patients experience the combination of these symptoms. The substantial impact of abnormal uterine bleeding (AUB) lies not only in its prevalence, but its effect on quality of life, associated loss of productivity, and major health care costs.¹ AUB is regarded as a sign of possible uterine disease, including acute and chronic AUB. It is the most common symptom

and main complaint among Chinese women of childbearing age in the gynecological clinic, accounting for 30% of gynecological outpatient clinics.²

Palm-Coein is a useful acronym provided by the International Federation of Obstetrics and Gynecology (FIGO) to classify the underlying etiologies of abnormal uterine bleeding. The first portion, Palm, describes structural issues. The second portion, COEI, describes non-structural issues. The N stands for "not otherwise classified. P for polyp, A for adenomyosis, L for leiomyoma, M for malignancy and hyperplasia C for coagulopathy, O for ovulatory dysfunction, E for

endometrial disorders, I for iatrogenic and N for not otherwise classified.³

One or more of the problems listed above can contribute to a patient's abnormal uterine bleeding. Some structural entities, such as endocervical polyps, endometrial polyps, or leiomyomas, may be asymptomatic and not the primary cause of a patient's AUB.³ Drug utilization research can increase our understanding of how drugs are being used. It can be used to estimate the numbers of patients exposed to specified drugs within a given time period. Such estimates may either refer to all drug users, regardless of when they started to use the drug (prevalence), or focus on patients who started to use the drug within the selected period (incidence).⁴

It can describe the extent of use at a certain moment and/or in a certain area (e.g. in a country, region, community or hospital). Such descriptions are most meaningful when they form part of a continuous evaluation system, i.e. when the patterns are followed over time and trends in drug use can be discerned. Researchers can estimate (e.g. on the basis of epidemiological data on a disease) to what extent drugs are properly used, overused or underused. It can be used to compare the observed patterns of drug use for the treatment of a certain disease with current recommendations or guidelines.⁴

The ATC classification system divides the drugs into different groups according to the organ or system on which they act and according to their chemical, pharmacological and therapeutic properties. The DDD is the assumed average maintenance dose per day for a drug used for its main indication in adults. It should be emphasized that the DDD is a unit of measurement and does not necessarily correspond to the recommended or prescribed daily dose (PDD). Doses for individual patients and patient groups will often differ from the DDD as they must be based on individual characteristics (e.g. age and weight) and pharmacokinetic considerations.⁴ Drug utilization figures should ideally be presented as numbers of DDDs per 1000 inhabitants per day or, when drug use by inpatients is considered, as DDDs per 100 bed-days or when calculating epidemiology diseases, DDD/patient indicator is often used and it expresses the treatment intensity/total exposure according to a defined study period.⁴ If the actual dose used is equivalent to the DDD, the DDD/patient would also express the number of treatment days in a specific period.⁵ And AUB is a varying condition in regularity, frequency, duration of flow and amount of blood loss depending upon the patient.⁶ Hence this study was carried out by using DDD per patient indicator.

METHODS

The observational study was conducted at Department of Obstetrics and Gynecology, Rajah Muthiah Medical

College and Hospital, Annamalai University, Annamalai Nagar, Tamil Nadu, from the period of July 2019 to September 2019.

Inclusion criteria

Inclusion criteria were patient who were admitted in obstetrics and gynecology department, diagnosed with abnormal uterine bleeding and with other co-morbid conditions during the study period.

Exclusion criteria

Exclusion criteria were patient who are not willing to participate and not providing informed consent form, patient was pregnant, lactating and unconscious.

Study procedure

Involves the collection of all relevant data from cases (demographic details, drugs, principle diagnosis and co-morbid conditions) obtained from gynecology department.

Study method

Prescribed drugs were classified and analysed WHO prescribing indicators average number of drugs per prescription, percentage of drug prescribed in generic name, number of drugs prescribed from NLEM (2015), number of drugs prescribed from EDL (2019).⁷⁻⁹ Percentage of prescription with anti-biotic and percentage of prescriptions with injection where compared with WHO standards.

Drugs were classified using anatomical and therapeutic classification (ATC) system (WHO-ATC 2020), and consumption of drugs measured by defined daily dose (DDD) per patient.

DDD/patient

This indicator is often calculated in pharmacoepidemiological databases and expresses the treatment intensity/total exposure according to a defined study period. If the actual dose used is equivalent to the DDD, the DDD/patient would also express the number of treatment days in a specific period.⁵

DDD/patient = Utilization in DDDs/Number of patients

Utilization in DDD = No of items issued × amount of drug per item/WHO DDD

Statistical analysis

Data was entered and analyzed with microsoft excel 2007. Descriptive statistics were used to analyze the

results. Percentage and averages of the variable were also calculated to compare the data with other findings.

RESULTS

Total of 30 patients were divided into three age trends 25-35 years 13.3%, 36-45 years 66.6%, and 46-55 years 20%. In our study most of the patients come under 36-45 years 66.6% were given (Table 1).

Table 1: Age wise distribution of patients.

Age in years	No. of patients	%
25-35	4	13.3
36-45	20	66.6
46-55	6	20

Out of 30 patients 7 (23.3%) were diagnosed with AUB. Co-morbidities were calculated. Patients with two co-morbidities 19 (63.3%) and the condition were AUB with severe anemia, fibroid uterus, diabetes mellitus, simple hyperplasia, III-degree UV prolapsed with cystocele. And the patients with three co-morbidities 4 (13.3%) and the conditions were AUB with systemic hypertension with diabetes mellitus, hypothyroidism with severe anemia, hypothyroidism with diabetes mellitus were shown in (Table 2).

Table 2: Distribution of co morbidities in patients.

No. of diseases	No. of patients	%
1	7	23.3
2	19	63.3
3	4	13.3

Among 30 prescription, the majority of the patient were prescribed with ferrous sulfate 27 (90%) followed by mebendazole 25 (83.3%), calcium carbonate 24 (80%) and glibenclamide, ornidazole, mefenamic acid, pantoprazole, b complex were prescribed 2 (6.66%) each and least prescribed drugs were amoxicillin, bisacodyl, erythromycin were 1 (3.33%) each. Anti-fibrinolytic therapy for AUB patients, out of 30 patients were prescribed tranexamic acid 12 (40%) and mefenamic acid 2 (6.66%) further information was shown in (Table 3).

WHO prescribing indicators like average number of drugs per prescription 10.8, percentage of drug prescribed in generic name 69.56% and number of drugs prescribed from NLEM-2015 86.95%, number of drugs prescribed from EDL-2019 were 69.56% and percentage of prescription with antibiotic 80%, percentage of prescription with injection 70% were shown in (Table 4).

In our study, prescribed drugs were calculated in terms of DDD per patient for norethisterone (G03AC01) (36 DDD/patient) followed by ferrous sulfate (B03AA07)

(23.11 DDD/patient) and the least is bisacodyl (A06AB02) (1 DDD/patient) and followed by calcium carbonate (A12AA04) (0.64 DDD/patient). The ATC code and the DDD per patient of the prescribed drugs were shown in (Table 5).

Table 3: Drugs prescribed in AUB patients.

Drug name	No. of patients	%
Ferrous sulfate	27	90
Mebendazole	25	83.3
Calcium carbonate	24	80
Doxycycline	19	63.3
Metronidazole	19	63.3
Ranitidine	17	56.6
Vitamin C (ascorbic acid)	14	46.6
Tranexamic acid	12	40
Paracetamol	5	16.66
Levothyroxine	5	16.66
Amlodipine	4	13.3
Tramadol	3	10
Norethisterone	3	10
Metformin	3	10
Cefixime	3	10
Glibenclamide	2	6.66
Ornidazole	2	6.66
Mefenamic acid	2	6.66
Pantoprazole	2	6.66
B complex	2	6.66
Amoxicillin	1	3.33
Bisacodyl	1	3.33
Erythromycin	1	3.33

Table 4: WHO prescribing indicators.

Prescribing indicator	Values obtained (%)	WHO standards (%)
Average number of drugs per prescription	10.8	1.6-4.8
Percentage of drug prescribed in generic	69.56	100
Number of drugs prescribed from national list of essential medicines (NLEM) 2015	86.95	100
Number of drugs prescribed from essential drug list (EDL) 2019	69.56	100
Percentage of prescription with anti-biotic	80	20-26.8
Percentage of prescriptions with injection	70	13.4-24.1

Table 5: DDD/patient.

ATC CODE	Drug name	WHO DDD	DDD	DDD/patient
G03AC01	Norethisterone	2.5 mg	108	36
B03AA07	Ferrous sulfate	0.2 g	624	23.11
A11EA	B complex	1UD*	30	15
J01AA02	Doxycycline	0.1 g	260	13.68
A02BC02	Pantoprazole	40 mg	26	13
A02BA02	Ranitidine	0.3 g	138	8.11
A11GA01	Vitamin C (ascorbic acid)	0.2 g	107	7.64
P01AB01	Metronidazole	2 g	75	3.94
N02AX02	Tramadol	0.3 g	9.24	3.08
B02AA02	Tranexamic acid	2 g	36.5	3.04
J01DD08	Cefixime	0.4 g	9	3
A10BA02	Metformin	2 g	8.5	2.83
P02CA01	Mebendazole	0.2 g	70	2.8
A10BB01	Glibenclamide	10 mg	5	2.5
J01FA01	Erythromycin	1 g	2	2
J01CA04	Amoxicillin	1.5 g	1.98	1.98
C08CA01	Amlodipine	5 mg	7	1.75
N02AX02	Paracetamol	3 g	7.36	1.47
M01AG01	Mefenamic acid	1 g	2.6	1.3
H03AA01	Levothyroxine	0.15 mg	5.76	1.152
P01AB03	Ornidazole	1.5 g	2.31	1.15
A06AB02	Bisacodyl	10 mg	1	1
A12AA04	Calcium carbonate	3 g	17.5	0.64

*UD = unit dose.

DISCUSSION

The study was conducted with 30 gynecology patients. The patient was selected upon the fulfillment of inclusion and exclusion criteria. Our study was observational study taken place in tertiary care teaching hospital. To study the utilization of drugs in patients admitted with abnormal uterine bleeding by using DDD/ATC concept.

The study was conducted with 30 AUB patient in the maximum number of patients were in the age group 36-45 years 66.6%, where in Balasubramanian et al and Nair et al and Talukdar et al concluded that higher number of gynecology patient were seen between age group of 40-50 years.¹⁰⁻¹²

Among 30 patients 7 (23.3%) were diagnosed AUB and the co-morbidities condition patient with single co-morbidities AUB with severe anemia was most diagnosed. Similar result was reported by Suseela et al.¹³ A contradictory result was shown in a study carried out by Bet al and Gupta et al it was found that AUB with fibroid uterus was the most commonly diagnosed.^{12,14}

Out of 30 prescription, the majority of the patient were prescribed ferrous sulfate 27 (90%) in gynecology department. Similar result was reported by Suseela et al.¹³ And the tranexamic acid was most commonly prescribed anti-fibrinolytic agent for AUB patients. similar result was reported by Suseela et al.¹³ A contradictory result

was reported by Bhuvanawari et al, where they found mefenamic acid is most prescribed anti-fibrinolytic agent.¹⁵

WHO prescribing indicators

Average number of drugs per prescription was 10.8 this is deviates from the WHO standards (1.6 to 4.8). The minimum number of drugs per prescription was 5 and the maximum number of prescriptions was 22.

Percentage of drug prescribed in generic name, out of 23 drugs 69.56% of drug were prescribed in generic name, 30.43% of drug were prescribed in brand name and nearly similar result were found in 60% Shinde et al and the WHO recommendation of 100%.¹⁶

86.95% of drug prescribed were national list of essential medicines (NLEM-2015), 69.56% of drug prescribed were essential drug list (EDL-2019). There is positive outcome to compared with WHO standards. In similar result was found in EDL 69.8% Athawale et al.¹⁷

Out of 30 prescription included in this study, anti-biotic were prescribed in 80% which was greater than that found in the study carried out by Shinde et al, where they found antibiotic were prescribed 6.3%.¹⁶

Out of total 30 prescription, injection was prescribed in 70% of prescription remaining drugs were prescribed by

oral route which was slightly greater than that found in the study carried out by Athawale et al, where they found injection prescribed by 84.94%.¹⁷

A defined daily dose (DDD) is assigned for drugs that already have an ATC code. It is the assumed average maintenance dose per day for a drug used for its main indication in adults and provide a fixed unit of measurement independent of price, currencies, package size and strength enabling comparisons between population groups.

CONCLUSION

This study has shown the utilization of drugs prescribed in AUB patient. The most commonly prescribed drug was ferrous sulfate and most prescribed antifibrinolytic drug was tranexamic acid for treating AUB. Our study helps to optimize the drug therapy, improve the quality of care and reduce the negative outcome.

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