DRUG UTILIZATION STUDY OF ANTIHYPERTENSIVES IN OBSTETRIC PRACTICE IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Objectives: To evaluate the drug utilization of antihypertensive in obstetric practice two tertiary care hospitals in Gulbarga city.

*Material & Methods***:** A prospective cross-sectional study was conducted for 2 years in obstetric departments of Government General Hospital and Sangameshwar Teaching Hospital, Gulbarga. W.H.O. basic drug indicators were used for studying the prescribing trends and interviewing the patients.

*Results***:** A total of 200 prescriptions were studied and the average number of drugs per prescription was 2.47. 1.89% of generics and 49.59% of essential drugs were prescribed. 98.15% were non generic names used. The average consulting time given per patient was 9 mins 8 secs. 69.5% of the patients knew their dosage schedule and this was related to their education status. 13% were irrational prescription. The frequency of use of Nifedipine was highest followed by Benzathiazide + Triamterene, Amlodipine, Furosemide, Methyldopa and Spiranolactone etc. The use of the safest drug, Methyldopa was among only 4% of patients. 66.28% of prescribes drugs were available in hospital pharmacy.

Conclusion **:** The incidence of poly pharmacy was high. Patient compliance is good only among educated patients. Irrational prescriptions were few. The availability of drugs in the hospitals was not satisfactory. The present healthcare can be improved by advocating rational drug prescribing patient education and improving the facilities in the hospitals.

KEYWORDS: Drug utilization study, antihypertensive, Pregnancy induced hypertension, drug use indicators.

INTRODUCTION

Drug utilization studies previously have been conducted mostly for marketing purposes and data was not available for academic purposes to health care professionals. The virtual explosion in the marketing of new drugs, the wide variations in the patterns and extent of drug prescribing, the growing concern about ADRs and cost of drugs has led the health professionals to conduct drug utilization studies.

They create a sound socio-medical health economic basis for health care decision making [1]. World Health Organization specifies drug use indicators [2] for adoption in drug utilization studies.

Today, drug utilization studies have widened the areas to newer applications of drugs, individual differences of drug responses, patient counseling, pharmaco-economic aspects, social aspects of drug use and misuse, correlation between clinical trials and clinical practice, formulations of better therapeutic guidelines, discovery of new indications, new drug discovery etc.

Hypertensive disorders are the most common medical complications of pregnancy with a reported incidence ranging from 6 to 10% [3]. The incidence varies among different hospitals, regions and countries. In addition, these disorders are a major cause of maternal and prenatal mortality world wide [4].

Hypertensive pregnant mothers have greater risks for premature deliver, intrauterine foetal death, growth retardation and abruptioplacentae, they also have an increased risk of vascular injury with thrombotic microangiopaty and co-agulopathy, cerebral haemorrahage, and multi organ injury especially of kidney and liver.

So as to avoid all such complications, it is better to start the treatment with antihypertensive after assessing correct stage and class of hypertension and always prescribe the safe drug to avoid adverse effects over the foetus and mother.

The goal of antihypertensive therapy is to protect the mother from the extremes of hypertension and potential morbidity, there by, allowing the pregnancy to continue and the foetus to grow and mature normally. Observations should be made on teratogenic risks, potential adverse effects on foetal cardiovascular of end organ function and a potential impact on foetal growth and uteroplacental haemodynamics and perfusion.

In contrast with drug utilization study, pharmacoepidemiological studies are the study of effects of the drugs in a large number of persons [5-7]. Recently the definition has been changed as "the study of distribution and determinants of drug related events in population and application of this for the safe and efficacious drug use with special emphases on the resulting medical, social and economic consequences" [8].

The first study in drug utilization can be traced back to the thalidomide tragedy when SPIERS made an extensive study of prescriptions in an area of Scotland called Stering-shire to retrive prescriptions written for thalidomide for majority of mothers[9].

The errors in prescriptions are not uncommon. This could be due to ignorance or inadequate knowledge about the disease and the pharmacology of the drugs prescribed. Erroneous prescriptions are recognized even in tertiary care hospital [10].

As prescribing habits differ from doctor to doctor and several factors influence drug prescription. It has been proposed that there are differences in prescribing due to differences in therapeutic approach among doctors in different countries [11].

MATERIALS & METHODOLOGY

Two teaching hospitals namely Govt. General Hospital and Sangmeshwar Teaching Hospital, Gulbarga attached to M. R. Medical College, Gulbarga were selected for our prospective study. Out of these, one is a Government Hospital and the other is a Private Hospial. This was done, keeping in view the patients of two economic classes (Higher / Lower). Both the hospitals have full fledged facilities of a tertiary care hospital.

The patients were selected from any of the units belonging to the department. Hence the teaching staff of the concerned units and postgraduate students was involved in the study. The plan of the study was discussed with them and information regarding the use of drugs in detail was sought. Some information was directly taken from the patients. The chief complaints, detailed history of the past and present, vital parameters, physical signs and investigations done were recorded. The total duration of the study was for a period of 2 years i.e., January 2003 to January 2005.

Core Indicators

i) Prescribing indicators :

> a) Average number of drugs per encounter was calculated by dividing the total number of different drug products prescribed by the number of encounters surveyed.

b) Percentage of drugs prescribed by generic name was determined by dividing the number of drugs prescribed by generic name by the total number of drugs prescribed, multiplied by 100.

c) Percentage of drugs prescribed from essential drug list was determined by dividing the number of products prescribed from essential drug list of the hospital by the total number of drugs prescribed, multiplied by 100.

ii) Patient care indicators :

a) Average consultation time was determined by dividing the total time for a series of consultations, by the actual number of consultations.

b) Patients' knowledge of correct dosage was found by dividing the number of patients who can adequately report the dosage schedule for all drugs, by the total number of patients interviewed, multiplied by 100.

iii) Facility Indicators

a) Availability of copy of EDL by stating yes (or) no.

b) Availability of key drugs was calculated by dividing the number of specified products. Actually in stock by the total number of drugs on the check list of essential drugs multiplied by 100.

Complementary Indicators:

Total cost of the drugs was calculated by considering the cost for each 10 tab used in the study.

Definition of risk factors :

These definitions are those used by the United States food and Drug Administration (FDA).[12]

Category A:

Controlled studies in women fail to demonstrate a risk to the foetus in the 1st trimester (and there is no evidence of a risk in later trimesters), and the possibility of foetal harm remains remote.

Category B:

Either animal-reproduction studies have not demonstrated a foetal risk but there are no controlled studies in pregnant women or animal-reproduction studies have shown an adverse effect (other than a decrease in fertility) that was not confirmed in controlled studies in women in the 1st trimester (and there is no evidence of a risk in later trimesters).

Category C:

Either studies in animals have revealed adverse effects on the foetus (teratogenic or embryocidal or other) and there are no controlled studies in women and animals are not available. Drugs should be given only if the potential benefits justify the potential risk to the foetus.

Category D:

There is positive evidence of human foetal risk, but the benefits from use in pregnant women may be acceptable despite the risk (e.g. if the drug is needed in a life-threatening situation or for a serious disease for which safer drugs cannot be used or are ineffective).

Category X:

Studies in animals or human beings have demonstrated foetal abnormalities or there is evidence of foetal risk based on human experience or both, and the risk of the use drug in pregnant women clearly outweighs any possible benefits. The drug is contraindicated in women who are, or may become pregnant. The drugs used are shown in table- 1.

Antihypertensive used against Risk factors used by the United States Food and drug Administrator are categorized into A, B, C, D, X. Statistical analysis was done by simple sampling method.

Statistical Analysis:

Statistical analysis was done by simple sampling method.

RESULTS

A total of 200 prescriptions were collected. 21% were with essential hypertension, 25% were with Transient hypertension, 51% were with Pre eclampsea and 103% were with Eclampsea. The key drug indicators are given in table-2.

Table -1. Names of Anti-hypertensives used and their frequency

Names of Drugs	Sangameshwar Hospital	Govt. General Hospital	Category of drugs
Tab. Myogard (Nifedipine)	89	82	C
Tab.Ditide (Benzthiazide+Triamterence)	74	38	C
Inj. Lasix (Furosemide)	41	34	C
Tab. Stamlo (Amlodipine)	28	7	C
Tab. Depin (Nifedipine)	7	4	C
Tab. Methyl dopa (Methyldopa)	4	9	B
Tab. Nicardia Retard (Nifedipine)	1	--	C
Tab. Aten (Atenolo)	3	--	D
Tab. Amlong (Amlodipine)	2	3	C
Tab. Aldactone (Spironolactone)	2	--	C
Tab. Alphadopa (Methyldopa)	1	2	B

Table-2.Details on drug use indicators

Indicators	Data
Core Indicators	
Average drugs prescribed	2.47
Generics	1.89
On essential drug list	49.59
Patient care indicators	
Average consulting time	9.8 mins
Adequate knowledge	69.5 mins
Facility Indicators	
Availability of EDL	Yes
Key drug available	50.0%
Complementary Indicators	
Average cost of per 10 tablets	13.54

DISCUSSION

Eclampsia is considered to be a life threatening emerging for both mother & foetus. Magnesium Sulfate is found to be the drug of choice, a (anticonvelsant) as Magnesium Sulfate does not treat hypertension, antihypertensives have to be used which are beneficial to both mother & baby [13].

The incidence of hypertension in pregnancy was highest among primiglavide our study correlates with the same as Cheeley in 1985 [14].

In our study only generic drug used was Methydopa Which was 1.81% and the non generic drugs used were more comparatively, and also Methyldopa considered to be the safest drug was used only 4%. Essential drugs prescribed were 49.59%. The other area were unconventional measures are needed is patient education and knowledge regarding dosage schedule on the Govt. Hospital. When compared with the private hospital, because 48% of patients of Govt. Hospital had inadequate knowledge.

13% of were irrational prescription (51% in Sangameshwar hospital and 21% in Govt. hospital). It was due to under use of drugs, overuse of drugs, drugs used for short duration and drugs used for unnecessary prolonged duration of time.

According to the previous reports Calcium channel blockers [15] are generally contraindicated or given as a second choice drug because of the possible inhabitants of uterine contractions which we have to consider. But in our study 70% to 90% patients received Ca Channel blockers. 15-25% cases received a potent diuretic Furosemide, given parenterally which is totally not advisable in pregnancy due to volume depletion. This we have to make Gynaecologists.

In Sangameshwar hospital all the drugs were available in hospital pharmacy in Govt. hospital only Tab Depin (Nefidipine) were given free of cost to the admitted patients, other drugs were purchased from private pharmacy. Steps regarding improvement of hospital pharmacy should be taken.

It may be concluded that the incidence of poly pharmacy was more which has to be corrected, essential drugs available was nearing 50% so more & more essential drugs should be available in the hospitals motivating the people to get educated. For all these, there is an utter need of organizing continued medical education programmes.

- ➢ Face to face training.
- ➢ Awareness about the EDL.
- ➢ Drug utilization studies in other areas.
- ➢ Co-relation between training in University prescribing practices should be reviewed.
- ➢ Educating or training Medical Staff (like nurses/brothers).

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