Research Article

A study of prescribing pattern of anti-diabetic drugs using WHO prescribing indicators among general practitioners in a semi urban area

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Abstract

Objective: To analyse the prescribing pattern of anti-diabetic drugs among general practitioners in a semi urban area. **Methods:** A total number of five hundred prescriptions pertaining to diabetes mellitus were collected. Details such as name of drugs, dosage form and route of administration were noted. Demographic details such as name, age, gender were collected. All data collected as per proforma were analyzed manually using WHO prescribing indicators. **Results:** The average number of drugs per encounter was 4.8 (ideal 1.6-1.8). Percentage of drugs prescribed by generic name was 24% (ideal 100%). Percentage of drugs encounter with antibiotics was 29% (ideal 20-26.8%). Percentage of drugs encounter with injection 28% (ideal 13.4-24.1%). Percentage of drugs prescribed from EDL 75% (IDEAL100%). **Conclusion:** The study revealed use of polypharmacy among general practitioners. There was lack of knowledge of the use of generic name and drugs listed under EDL. There was appropriate use of antibiotics among the practitioners. This study will be help to reduce the cost, recognize and prevent dangerous drug-drug interaction and antibiotic resistance.
Keywords: Essential Drug list (EDL) WHO prescribing indicators polypharmacy drug interactions.

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INTRODUCTION

As per the WHO, in India during the year 2000 there were around 31.7 million diabetics which may further rise to 79.4 million by the year 2030.Diabetes mellitus is a chronic disorder emerging as major health problem. Poor management leads to several complications. DM management requires both pharmacological and non-pharmacological interventions. Irrational use of drugs is a major health concern of present day general practice. Indicators provide a measure of performance of health care providers in the area of prescribing practice. WHO has developed a core prescribing indicators to measure the degree of polypharmacy, the tendancy to prescribe drugs by generic name and overall level of use of antibiotics and injection. The degree to which the prescribing practice is adhered to the essential drug list (EDL), standard treatment guideline (STG) is also measured. This is done by searching for number of drugs prescribed from the essential drug list[1]. Ineffective treatment, unnecessary prescription of drugs particularly antimicrobials and injections, development of resistance to antibiotics, adverse effects and economic burden both on patients and society are inevitable consequences. It has been estimated that 50% or more medicine expenditure is being wasted through irrational prescribing, dispensing and patient use of medicine[2]. In the health care settings of developing countries irrational prescriptions and long term use of drugs is characterized by polypharmacy, excessive use of antibiotics and injection and use of drugs of doubtful efficacy is quite common[3]. Number of drugs are available for the treatment of type 1 and type 2 DM with or without complication. Whether the general

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practioners in semi urban area adhere to WHO core prescribing indicator is still unclear. Hence the study was designed with the following aim and objectives.

OBJECTIVE

To analyse the prescribing pattern of antidiabetic drugs among General Practitioners in a semi urban area.

METHODOLOGY

Prescriptions from General practitioners in a semi urban area (VILUPPURAM TOWN) collected and analyzed. Prescription containing anti diabetic drugs were entered into data collection sheet with details such as name of drugs, dosage form and route of administration of prescribed drugs. Demographic details such as name, age, gender of the patients receiving anti diabetic drugs were also noted. All data collected as per proforma were analyzed manually using WHO prescribing indicators and then using Microsoft excel 2013. Formula adopted from the WHO manual for prescribing indicators assessment.

1. Average number of drugs per encounter = Total number of drugs prescribed/total number of encounters sampled.
2. Percentage of drugs prescribed by generic name= (Number of drugs prescribed by generic name/ total number of drugs prescribed) x100.
3. Percentage of encounter with an antibiotic prescribed = (Number of patient encounter with an antibiotic / total Number of encounters sampled) x100.
4. Percentage of encounter with an injection prescribed = (Number of patient encounter with an injection prescribed / total Number of encounters sampled) x100.
5. Percentage of drugs prescribed from essential drugs list= (Number of drugs prescribed from essential drugs list / total number of drugs prescribed) x100.
6. Method of statistical analysis: Descriptive analysis
7. A total Number of 500 prescriptions was surveyed.

RESULTS

1. Total drugs prescribed…….2800
2. Average No of drugs prescribed per encounter =5.6
3. Male patients…. 326 (65%)
4. Female patients …….174 (35%)
5. Age group 51-70years ……..56%
6. Age group 30-50years…….44%
7. Percentage of drugs prescribed by genetic name ……24%
8. Antibiotic Prescribed…… 29%
9. Injection Prescribed…….. 28%
10. Drugs prescribed from essential drugs list……75%
11. Commonly used Antibiotic drugs: Metformin (58%), Glimipride(17%)
12. Antibiotic Prescribed
    a) Ciprofloxacin- 40%
    b) Cefixime- 22%
    c) Doxycyclin-18%

Other non- diabetic drugs were anti- hypertensives, analgesics/ Anti pyretics, anti malarial and multivitamins depending upon the diagnosis of patient.

Table 1: Distribution of prescribed anti diabetics drugs in the prescriptions

Sr. No	Drugs Name	% Of Use
1	Metformin	58%
2	Inj.Actrapid	04%
3	Glimipiride	17%
4	Glibenclamide	04%
5	Inj.Mixtrad	09%
6	Inj.Insulatard	03%
7	Others	05%

Table 2: Distribution of antibiotics prescribed

Sr. No	Drugs name	%of use
1	Fluoroquinolones	40%
2	Penicillins	04%
3	Cephalosporins	22%
4	Tetracyclins	18%
5	Rifampicin	03%
6	Aminoglycosides	03%
7	Macrolides	04%
8	Lincosamides	02%
9	Others	04%

Table 3: Distribution of comorbidity in observed encounters

Sr. No	Disease	% encountered
1	Hypertension	60%
2	Cad	25%
3	Copd	06%
4	Ccf	03%
5	Uti	06%
6	Dka	01%

DISCUSSION

Patients developing DM are in the age group of more than 50 years. DM is also more common in males. Lifestyle may be the reason for male predominance. The prevalence of type 2 DM is more when compared to type 1 DM. The average number of drugs per prescription was 4.8 which is more than the standard (1.6-1.8)[4] derived to serve as ideal. The reason for polypharmacy may be because of comorbid illnesses in DM patient[5]. Polypharmacy has been reported as one of the causes of

adverse drugs reactions[6]. The percentage of drugs prescribed by generic name in the present study showed 24% considering the standard to serve as ideal (100%)[7] . The general practitioners need to improve in prescribing pattern with more of generic name .The reason for which could be many like advertisements by the pharmaceutical companies, limited awareness about the prescribing guidelines of WHO by the prescribers ,insufficient availability of generic drugs in the pharmacies. Prescribing generic drugs could be a viable alternative as it decreases the economic burden on the patient[8]. Percentage of antibiotic prescribed in our study was 29% which is slightly more than the standard (20-26.8%) derived to be ideal[9] .This shows that the doctors in Villupuram are judiciously using antibiotics. The percentage of injection prescribed was 28% which again is slightly more than the standard (13.4-24.1%)[9] derived to serve as ideal. Injections are always expensive compared to other dosage forms more over it requires trained personal for administration. Besides this, unhygienic use of injection can increase the risk of transmission of potentially serious pathogens such as hepatitis, HIV/AIDS, and Blood Borne disease. In our study the percentage of drugs prescribed from EDL (India) was 75% which is less than standard (100%) to serve as ideal. Low percentage of result could be because of decreased awareness among the doctors about EDL. Metformin is the most common antidiabetic drug utilized for type II DM. In uncontrolled cases, sulfonylurea or insulin was added as the combination therapy as per ADA guidelines[10]. Metformin is followed by glimipride and glibenclamide. Among the antibiotics fluoroquinolones ranked high in our study followed by beta-lactam group of drugs (penicillin and cephalosporins) and tetracycline.

CONCLUSION

Diabetes mellitus is reaching potentially epidemic proportions in India. The level of morbidity and mortality due to diabetes and its potential complications are enormous, and pose significant healthcare burdens on both families and society. Worryingly, diabetes is now being shown to be associated with a spectrum of complications. In India, the steady migration of people from rural to urban areas, the economic boom, and corresponding change in life-style are all affecting the level of diabetes. The prescribing pattern of antidiabetic drugs showed among the middle aged group diabetes was prevalent. Polypharmacy in our study indicates occurrence of diabetes with comorbid conditions. Accounting for high cost drug interactions and non-compliance, lack of knowledge of the use of generic name and drugs listed under EDL has increased our findings from the standard. This requires awareness among the prescribers. Appropriate use of antibiotics and injections per encounter suggests sensible use of the same. Implementation of WHO core prescribing indicators by the prescribers would help to reduce the cost, to recognize and prevent potentially dangerous drug-drug interaction and antibiotic resistance.

REFERENCES

1. WHO (1993) how to investigate drug use in health facilities: selected drug use indicators.1-92.
2. Binu M, Sabbu R, Madhuri K, Hiremath D, Assessment of drugs prescribing practices using WHO prescribing indicators In a private Tertiary Care Teaching Hospital. IRJIPS 2013 1: 26-31.
3. Zimmet P. Supercoures. Epidemiology of Diabetes –Its history in the last 50 years. 2004 Jan 13, Http/WWW. Pitt.edu /-super1-lecture –lec 13271/-2k.
4. Isah AO, Ross –Degnan D,Quick J,Laing R,Mabadeje AFB: The development of standard values for the WHO drug use prescribing indicators. ICUM/EDM/WHO. Htt://archives. who. Int/prduc2004/rducd/ICIUM_ posters/1a2_txt.htm
5. Kumar MA, Nizar A,Shailaja K,Jayasutha J,Ramasamy C.A study on prescribing pattern and potential drug-drug interaction in type-2 diabetes mellitus(inpatients) in a tertiary care teaching hospital. Der Pharmacia Letter 2011; 3(4):13-19
6. Kidon MI, see Y. Adverse drug reactions in Singaporean Children. Singapore Med J. 2004; 45:574-577
7. Bela Patel, Bhavit Oza, Kamlesh P. Patel, Supriya D Malhotra, Varsha J. Patel. Pattern of antidiabetic drugs use in type -2 diabetic patients in a medicine outpatient clinic of a tertiary care teaching hospital. Int .J.Drug Dev and Res., 2013; 2(4): 485-491.
8. Abidi A, Gupta S, Kansal S. Prescription auditing and drug utilization pattern in a tertiary care teaching hospital of western UP. Int J Basic Clinpharmacol 2012;1(3):184-190
9. Sultana G, Kapur P, Aqil M, Alam MS, Pillai KK. Drug utilization of oral hypoglycemic agents in a university teaching hospital. Journal of clinical pharmacology and Therapeutics 2010; 35: 267-277
10. Yurgin N, Secnik K, Lage MJ. Antidiabetic prescription and glycemic control in German patients with type 2 diabetes mellitus: a retrospective database study. Clin Ther 2007; 29(2): 316-25.

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