

Study of prescribing practices of injections in outpatients of a rural tertiary care teaching hospital

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ABSTRACT

Background: Injections are probably the most common of all medical procedures. The combination of injection overuse and unsafe practices creates a major route of transmission of blood borne pathogenic infections. Unnecessary use of injections can also lead to unnecessary burden on the institution in terms of efficiency, infrastructure, staff requirement and poor utilization of resources. Monitoring and analysis of prescribing practices can help to achieve rational use of injections. The present study was carried out to study the injection prescription patterns in outpatients of a rural tertiary care teaching hospital, Ambajogai, Maharashtra, India.

Methods: A cross sectional descriptive study was conducted for duration of two months and 744 prescriptions were randomly collected and analyzed.

Results: The total number of injections prescribed in 744 prescriptions was 205. Most (71.70%) of the patients receiving them were above 35 years of age. The most common complaint for which the injections were prescribed was musculoskeletal pain (45.36%) followed by fever. About 155 (75.60%) prescriptions contained injection diclofenac which was the most commonly used drug followed by injection paracetamol (11.21%). There was a high tendency of using brand names in prescriptions (89.30%).

Conclusion: The study revealed high proportion of use of injectable drugs. There was overuse of analgesic injections like diclofenac, most of which were unnecessary and irrational. This leads to unnecessary burden on the institution in terms of efficiency, infrastructure, staff requirement and poor utilization of resources. There is a need to develop local guidelines for injection usage along with educational sessions for prescribing doctors.

Keywords: Drug utilization research, Injection practices, Irrational use

INTRODUCTION

Drug utilization research is defined as research on “the marketing, distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences” and has the principal aim of facilitating the rational use of drugs.¹

Injections are probably the most common of all medical procedures. About 16 billion injections are administered each year in developing countries with a rate of 2.4-5.8 injections per person per year² most of which are unnecessary therapeutic injections.³

Medical personnel and social scientists have noted the popular demand for injections and the alarming extent to

which unnecessary and unsafe injections are administered.² The combination of injection overuse and unsafe practices creates a major route of transmission for human immunodeficiency virus (HIV), hepatitis and other blood borne pathogenic infections.

A recent study indicated that each year, unsafe injections cause an estimated 1.3 million early deaths, a loss of 26 million years of life, and an annual burden of US\$ 535 million in direct medical costs.⁴ In India, 3-6 billion injections are provided each year and almost every second, patient in an outpatient clinic in the country gets prescription for an injection irrespective of the illness where almost two-thirds of these injections are unsafe, and 32% have the potential to transmit blood-borne infections.⁵ The prevalence of prescription of an

unnecessary injection is increasing because of patients' demand who overvalue them compared to oral medication.⁶

In turn, doctors also over-prescribe injections as they believe that this satisfies patients best, even though patients are often open to alternatives. In addition, giving an injection sometimes justifies charging a higher fee for the service provided.

Irrational prescription of injections is a common occurrence in clinical practice. To minimize the incidence of blood borne pathogenic infections and the cost of the treatment, the rational use of injections should include careful consideration of severity and diagnosis of the ailment and the actual need of parenteral drugs. Knowledge on how injectable drugs are being prescribed and used will be of immense help in initiating a discussion on their rational use and suggesting measures to improve prescribing.

The purpose of this study is monitor and analyse the pattern of prescribing injections among the outpatients in a rural tertiary care and teaching hospital, Ambajogai, Maharashtra, India.

METHODS

Permission from Institutional Ethics Committee was taken before the initiation of the study. This cross sectional descriptive study was conducted in S.R.T.R. Medical College, Ambajogai, Maharashtra, India for a duration of two months from November 2010 to December 2010. A total of 744 prescriptions were randomly collected over a period of 2 months and recorded over a predesigned form. The data collected included name, age, sex, occupation, symptoms, diagnosis, drug name, dose, duration, route of administration, frequency of administration. Data was analyzed to find out the prescribing pattern of injections in the hospital using the WHO core drug indicators and complementary indicators.¹

RESULTS

The total number of injections prescribed in 744 prescriptions was 205 with the rate of prescribing being 27.53%. Out of 205 prescriptions with injections, 193 (94.14%) were with one injection per prescription and for 12 (5.85%) prescriptions, two injections were prescribed on a single prescription [Table 1]. Majority (61.46%) of the prescriptions for injections were for females. Most (71.70%) of the patients receiving them were males and females above 35 years of age [Table 2].

Of the 205 prescriptions, the most common complaint for which the injections were prescribed was musculoskeletal pain (45.36%) followed by fever. Immunization comprised of 8.78% of all the prescriptions for injections [Table 3]. About 155 (75.60%) prescriptions contained

injection diclofenac which was the most commonly used drug followed by injection paracetamol (11.21%).

The diagnosis was not mentioned in 63.42% of the prescriptions containing injections. Almost 90% of injections were prescribed by brand names. In majority (93.55%) of the prescriptions, the route of administration of the injections was not mentioned [Table 4].

Table 1: Number of injections per prescription.

No of injections	No of prescriptions	%
1 Injection	193	94.14%
2 Injections	12	5.85%
Total	205	100

Table 2: Age and sexwise distribution of patients prescribed injection.

Age (Years)	Males	Females	Total	
			No.	%
1-12	02	04	06	2.92
13-35	20	32	52	25.36
36-60	26	52	78	38.07
>60	31	38	69	33.65
Total	79	126	205	100

Table 3: Chief complaints/indications for which injections were prescribed.

Complaints/Indications	Total	%
Musculoskeletal pain	93	45.36
Backache	10	04.97
Immunization	18	08.79
Headache	09	04.52
URTI	14	06.31
Nausea/Vomiting	03	01.46
Fever	23	11.51
Insulin therapy	06	02.93
Others	29	14.15
Total	205	100

Table 4: Details of the information included on the prescriptions for injections.

Information	Mentioned (in percentage)	
	Yes (%)	No (%)
Diagnosis	36.58	63.42
Route of administration	93.55	06.45
Generic name	10.70	89.3

DISCUSSION

Many studies have observed an irrational and excessive use of injections. In this study, injections were prescribed to 27.53% of patients. In some countries like Saudi Arabia, this rate was reported to be 2.1.⁷ In some studies in different parts of India, a similar high rate was reported i.e. 23.7% by Motghare VM, et al.⁸ In another study by Rajesekaran M et al, For every 100 prescriptions, 80.4 contain at least one injection, which was also similar to that reported for some other developing countries.⁹

The higher use of unnecessary injections can be evaluated from the reasons for which they were prescribed. Two major reasons for prescribing unnecessary injections are patient preference and prescriber's benefit, probably to sustain economic incentives. Patients prefer injections because they believe them to be more effective. They also believe that doctors regard injections to be the best form of treatment. In turn, doctors over-prescribe injections because they believe that this satisfies patients best, even though patients are often open to alternatives. A study by Lopez S et al showed the 67% prescribers indicated that patients preferred injections for the conditions which could be treated with oral drugs.¹⁰

The study showed that majority of the injections were prescribed to elderly patients who feel that injections are the right treatment for serious complaints.¹¹ 94.14% of the prescriptions showed at least one injection per prescription. The most common complaints for which injections were prescribed are musculoskeletal pain and fever; the two conditions which can be well managed with the use of analgesics and antipyretics administered orally. The most commonly used injection was diclofenac with failure to diagnose the appropriate cause for musculoskeletal pain, suggests a trend towards symptomatic rather than curative treatment.

The analysis of the prescriptions showed that the prescribing information about injections was inadequate for majority of them. The diagnosis was not mentioned in 63.42% of prescriptions which suggests irrational use of injections. Such unnecessary use of injections can lead to unnecessary burden on the institution in terms of efficiency, infrastructure, staff requirement and poor utilization of resources. The ratio of therapeutic to

immunisation injections was 11.38:1 in the present study, which is similar to that in other studies in India, but less than 20:1 quoted in the WHO fact sheet.⁴ This could be due to improved immunisation coverage in India.

89.4% of the injections were prescribed by brand name rather than generic name. Using brand names for prescription might create dispensing errors. Prescribing by generic names may help to reduce the cost of the therapy.

There is a need to educate the prescribers to reduce the number of unnecessary injections to bare minimum and to motivate patients to prefer oral medications whenever possible taking into consideration the risk of blood borne infections and the cost of injections. Various approaches should be followed to decrease the overuse of injections such as interaction between doctor and patient, promotion of oral drugs and restricted access to over-the-counter injections. There is a need to develop local guidelines for injection usage along with educational sessions for prescribing doctors, on the correct method of writing prescriptions.

This study had many limitations. The study did not investigate the reasons for unnecessary use of injections. The study was carried out over a period of two months which could not take into consideration the seasonal variations in disease pattern and drug utilization. Study of one year duration would have excluded the seasonal variations. Patients' opinion regarding use of injections was not assessed.

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Conflict of Interest: Nil

Ethical approval: The study was approved by the Institutional Ethics Committee

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