

Original Article

Preferred Mode Of Drug Administration Among Patients Visiting Primary Health Centres Attached To Medical College, Trichy

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Abstract

Background: Decision on the route of administering a drug depends not only upon the treating physician but also the patients themselves. The most common route available for most of the drugs is either oral form of tablets or intramuscular injections. The current study has been done to understand the preferred route by patients and reasons for such preference in acute illness. **Methods and materials:** 200 patients visiting any of primary health centres attached to the community medicine department of a medical college were selected and interviewed. A Questionnaire was designed to collect their socio-demographic details, preferred route (injections vs. tablets) of drug delivery and reasons for their preference. Analysis of data was done in SPSS. **Results:** Mean age of the study participants was 38.82±13.01 years. 70% patients preferred injections over tablets. The most cited reasons include quick relief from symptoms and absence of gastric symptoms. Reasons for tablet preference were fear of pain during or after injections and cheap cost of tablets. Among the socio-demographic variable (age, sex, education, residence and socioeconomic status) that could be associated with their preference we found those residing in rural area preferred injection by 2.74 times more than urban residence that was found to be statistically significant (95% CI=1.45-5.19, p<0.05). **Conclusion:** Preference of injection over tablet is more among rural population than urban for acute illness.

Key words: Drug; Symptoms, Intramuscular

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INTRODUCTION

Traditionally treating physician had hold in deciding the best for their patients. With advancement in medicine, treatment methods and importance of patient rights to choose their treatment, there arise need to understand their preferences. Route of drug administration in many developing countries has been of great concern to health professionals due to widespread misuse of injections which can lead to wide range of health problems like

abscess, adverse drug reactions, and infectious disease like HIV and Hepatitis due to unsafe practises. Practical reasons should be given more considerations than the benefits and costs of different treatment¹ On the other hand with the developments in pharmaceutical industries and new combinations of drugs, patients are been provided with wide choices for the same drug like tablets, syrups, intramuscular, intravenous, inhalation and others. Not always patients are allowed to decide what they want

and the treating physician decides either based on real needs or merely with profit motives.

Understanding the preferences of patient is fundamental to the shared model of medical decision-making and in determining treatment modality^{2,3}. Formulating plans that recognise patients' preferences improves satisfaction and is associated with improved results⁴. Personality may also influence the choice of treatment and adherence, for example patients who have a sense of control over their treatment prefer oral routes⁵. A lot of study has been done regarding the preferred mode of drug delivery, but almost all were done at a tertiary level. This study was conducted mostly at a primary level and for acute illnesses such as fever, headache and body ache. It provides further insight for doctors and other health care providers to treat patients effectively.

Hence information regarding the reason for preference of injections over oral routes and ill effects of misuse of injections and reasons for their preference has been a never answerable question. Studies on this aspect has been limited and hence the current study has been done. The main aims of the study includes

1) To estimate the proportion of patients preferring injection over tablets as a preferred route of drug delivery for acute illness.

2) To identify the reasons for their preference and its association with certain socio-demographic variables.

MATERIAL AND METHOD:

Participants were a convenient sample of 200 patients visiting for any health issue at any one of the three primary health centres (Sirugambur, Sangenthi and Pullambadi) attached to the Department of Community medicine, Chennai medical college hospital and research centre, Trichy. The study period was around 2 months between August to September 2017. Inclusion criteria were those aged more than 18 years. Investigators were placed in all 3 primary health centres and study was conducted simultaneously in all 3 PHCs. Ethical clearance was obtained from the ethics committee of the institution. Written consent was also obtained from the patient

regarding their participation in the study. **Data collection tool**

Questions were divided into 2 sections, the first part consisted of their socio demographic details (age, sex, education, income, residence and occupation) and the second part, their preferred mode of drug delivery during acute illness (tablets or injections). Based on their preference they were asked to state the reasons regarding their preferred route. Patients preferring injections answered their set of questions and tablet preferring patients answered their set.

Statistical analysis

The data was done in Microsoft Excel and analysed using Statistical Package for the Social Sciences (SPSS Version 21). Results were expressed in percentage. The association between variables associated with the preferred mode was assessed with 95% CI and P value of <0.05 was taken to be statistically significant.

RESULTS

Out of the total 200 study participant, the minimum age was 18 years and maximum was 58. Mean age was 38.82±13. Most of the patients belong to the age group of 30 to 50 years. 61% were male the remaining females. Majority were educated beyond higher secondary school. Out of the 200 people, 140 preferred Injection over tablets (70%) and the rest 60 people preferred tablets over Injections (30%). Among patients preferring injections (n=140), 97.14% preferred them due to its fast action and quick relief from symptoms. Moreover 80.17% prefer injections as tablets cause gastric problems such as gastric ulcers. 60.71% patients prefer injections as they have a chance to forget to eat tablets. 57.14% prefer injection as they have lesser side effects than tablets, 55.7% for no need to carry them as tablets and 54.7% for they do not alter the taste perception [Table - 2] Among patients preferring tablets (n=60) 83.3% prefer them due to fear of pain during or after injections. 75% prefer tablets as they are economically cheaper than injections. 68.3% prefer tablets as they are shy to expose their body parts to health care professionals. Another 66.6% prefer them due to their lesser side effects than

injections. 63.3% among them prefer tablets as self-medication is easier in the absence of doctor or nurse compared to injections.[Table - 3] Further analysis to identify any significant association between preferred route of administration with socio demographic

variables, we found only residence in rural area preferred injection as route of drug administration over oral tables by 2.74 times, which was statistically significant at 95% CI with a p value of less than 0.05.

Table - 1 Socio demographic details of study participants (n=200)

Socio Demographic Variables		Frquency	Percentage
Age(years)	<30	59	29.5
	30 to 50	106	53
	>50	35	17.5
Sex	Male	122	61
	Female	78	39
Residence	Rural	96	48
	Urban	104	52
Education	Illiterate	5	2.5
	Primary school	39	19.5
	Middle school	31	15.5
	Higher secondary school	45	22.5
	Graduate	80	40
Occupation	Students	18	9
	Unemployed	5	2.5
	Unskilled	42	21
	Semi-skilled/skilled	65	32.5
	Clerical	27	13.5
	Professional	43	21.5

Table 2: Reasons for preferring injections over tablets

Reasons for preference of Injection (n=140)	Frequency	Percentage
Provide quick relief from symptoms	136	97.14
More cost effective	100	71.43
Has lesser side effect than tablet	80	57.14
Does not alter taste	76	54.28
Tablet cause gastric problems	113	80.71
Chance of forgetting to eat tablets	85	60.71
Need to carry tablets	78	55.71

Table 3: Reasons for preferring tablets over injection

Reasons for preference of Tablet (n=60)	Frequency	Percentage
More cheaper than injection	45	75
Fear of pain during/after injection	50	83.3
Shy to expose body parts to health care professional	41	68.3
Self-medication in easy in absence of doctor	38	63.3
Lesser side effect than injection	40	66.6

Chart 1: Proportion of study participants preferring injection versus tablets (n=200)

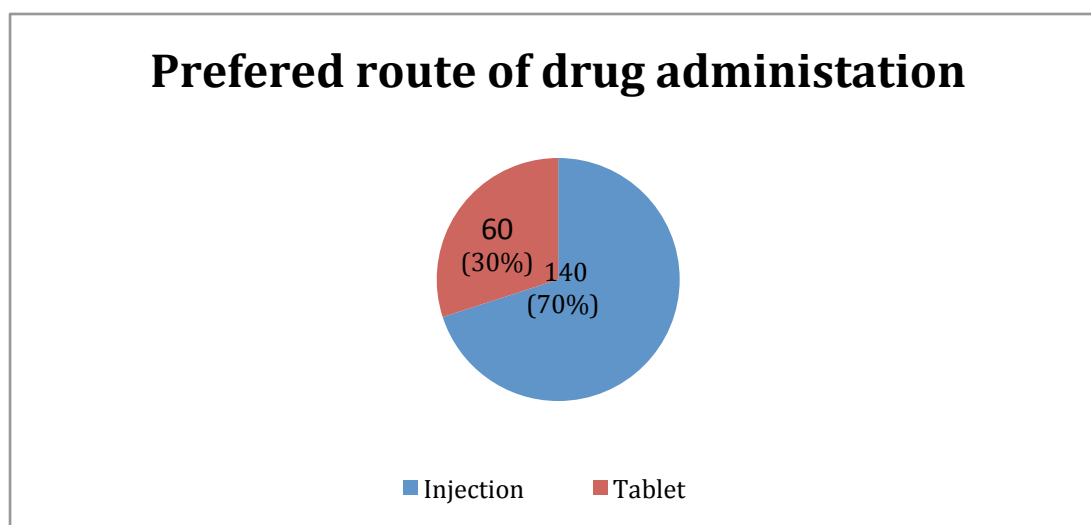


Table 4: Association between preferred route of drug administration and socio-demographic variables

Variable	Preferred route		Odds ratio (95% CI)	P value	
	Injection (n=140)	Tablet (n=60)			
Age	≤30 years (n=58)	45 (77.6%)	13 (22.4%)	1.7 (0.87- 3.58)	0.112
	>30 years (n=142)	94 (66.2%)	48 (33.3%)		
Sex	Female (n=77)	56 (72.7%)	21 (27.3%)	1.28(0.68- 2.4)	0.433
	Male (n=123)	83 (67.5%)	40 (32.5%)		
Residence	Rural (n=96)	77 (80.2%)	19 (19.8%)	2.74(1.45- 5.19)	0.002*
	Urban (n=104)	62 (59.6%)	42 (40.4%)		
Education	≤HS (n=121)	82 (67.8%)	39 (32.2%)	0.81(0.43- 1.51)	0.51
	>HS (n=79)	57 (72.2%)	22 (27.8%)		

HS=High school, * =statistically significant

DISCUSSION

This study on preference of injection versus tablets as preferred modes of drug delivery showed majority of the people (70%) preferred injections over tablets. Main reasons towards preferring injections over tablets includes its presumed fast action and relief from symptoms, its cost effectiveness. Other reasons include the presumed

ability of tablets to cause gastric ulcers, forgetting to eat tablets, and the need to carry tablets. Analysis of reasons for choice revealed convenience to be an important issue whatever preference patients had. People prefer tablets only because of their fear of pain during or after injections and their low cost compared to injections. Some patients commented that their

negative feelings towards injections were more related to their experiences with the side effects of past usage such as local site infections and injection related abscess. Patients, even those with life-threatening disease, often fail to take their tablets as prescribed; disturbingly, almost half the patients currently on oral medication reported forgetting to take their tablets from time to time. Prospective studies are needed to check whether preferences are related to actual treatment and whether preferences of mode of drug delivery changes over time⁽⁶⁾. Mostly of studies have studied the preferred route for drug delivery in chronic illness, since our studies focuses on acute illness we are unable to compare ours with their. We identified that people irrespective of their age preferred injections over tablets. Female preferred injections more than male probably due to their infrequent visits to shops as like males who usually work outside. Education does not seem to play a significant role here. Even graduates and professionals prefer injections over tablets mostly due to its fast action, they seek fast relief and can't get treated for long term to get back on work. Illiterates work on a daily basis where they get paid on a daily basis they too can't afford the loss of pay either, so they too prefer injections over tablets. A study employed a randomised crossover design and found different reasons for patient's preferences on mode of drug delivery before and after they had treatment for cancer⁷. Another study compared the preference of injection vs. tablets in women with breast cancer.⁸ Common outcome of these studies were statistically not significant but preference were more towards injections. Surprisingly a study on preference of disease modifying drug in multiple sclerosis revealed that 93% patients preferred tablets over injections.⁹ Yet another study on preferred mode of drug delivery among patients with rheumatoid arthritis revealed that patient preferred oral over injectable drugs¹⁰ Why patients choose a particular treatment is often poorly understood by the health-care professionals treating them. Some patients even prefer subcutaneous routes as a route of drug administration when asked in detail concerned with injections¹¹. After the study Medical officers of the respective primary health centres were asked about the patient preference on injections or tablets, without revealing the outcome of the study. Their answers correlated a lot with the results of this study. The individual preferences shown here emphasise the importance of good communication concerning available treatment options. If different routes of administration exist, then the merits and

demerit of a particular route should be appropriately discussed with the patients as this will help patient make the right decision. A lot of studies have been conducted regarding injection vs tablets among chronic illnesses. This study mostly included patients with acute illnesses such as fever, myalgia and headache. Most patients demand injection even when it is not required. There is a need to educate patients and health care providers about the ill effects of injections.^{12,13} Moreover the limitations of this study includes non- assessment of other formulation of drug route such as syrups, transdermal patch etc. Individual studies based upon selective diseases are needed for further assessment. Community based studies on large population are needed for further assessment. This study will act as a prototype for further more studies to come.

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