Original Research Article

A study on injection practice and its awareness among adults residing in the rural field practice area of a teaching hospital in South India

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ABSTRACT

Background: Injections are some of the most commonly done medical practice worldwide and it is estimated that approximately 16.7 billion injections are administered worldwide. A national study from India published in 2012 found that frequency of injection was 2.9 per person per year.

Methods: Community based cross-sectional study was done to asses the practice and awareness of injection use among 119 adults in a rural field practice area of a teaching hospital in South India. A pre-validated, unstructured questionnaire was used to collect the data. It consisted questions about demographic data such as age, sex, education, marital status etc. and questions about injection usage such as type, frequency, route of administration was recorded.

Results: Mean age of the study participant was 36.6. More than half 67 (56.3%) used injections in the past 3 months. On assessing the reasons for injection use, most of the participants complained of muscle pain 37 (31.1%). Among those who had injections in the past 3 months 52 (43.7%) received Intramuscular (I.M). 30 percent (35) of the injections were administered by interns followed by medical officer/physician 22 (34.5%) when asked about their general feeling after an injection, majority 78 (65.5%) of them said they felt better after receiving the injection. When asked about diseases transmitted through contaminated needles, 24 (20.2%) said don't know.

Conclusions: Nearly 60 percent of the individuals preferred injections to oral medicine awareness on the risk of injection and diseases transmitted through needles was low.

Keywords: Injection practice, Awareness, Rural area

INTRODUCTION

Injections are some of the most commonly done medical practice worldwide and it is estimated that approximately 16.7 billion injections are administered worldwide. A national study from India published in 2012 found that frequency of injection was 2.9 per person per year.[1] Injected medicines are commonly used in healthcare settings for the prevention, diagnosis, and treatment of various illnesses. Unsafe injection practices put patients and healthcare providers at risk of infectious and non-infectious adverse events and have been associated with a wide variety of procedures and settings. This harm is preventable.[2]

Safe injection practices are part of standard precautions and are aimed at maintaining basic levels of patient safety and provider protections. As defined by the World Health Organization, a safe injection does not harm the recipient, does not expose the provider to any avoidable risks and does not result in waste that is dangerous for the community.[2] Many injections around the world are unnecessary and often unsafe. Unsafe injections put lives at risk and every year cause 1.67 million hepatitis B infections, up to 315,120 hepatitis C infections and up to 33,877 human immunodeficiency virus (HIV) infections.[3,4]

Injection safety was defined as practices that intended to prevent transmission of infectious diseases between one patient and another, or between a patient and healthcare provider, and also to prevent harms such as needle-stick injuries, and to ensure safe environment for providers, patients and community through appropriate management of dangerous medical waste.[5] Despite the enormity of the problem, the level of concern is not the same in all countries of South Asia, as shown by variations in data availability on injection use and its determinants, and the extent of preventative actions at government levels.[6]

The WHO has now launched a global campaign on injection safety to reduce the overall burden of diseases caused by unsafe injection practices. WHO will be supporting the Ministry of Health and Family Welfare, Government of India to develop and implement a national initiative to improve injection safety. This will be done together with other partners, including other ministries, universities, the private sector and development agencies.[1] The present study was done to assess the prevalence of injection use among residents attending a rural health training centre and also to determine practice of injection use along with the awareness and attitude towards injection usage.

Objectives

- To estimate the prevalence of injection use among residents in the rural field practice area of a teaching hospital.
- To study the awareness and attitude of injection practice among the study population.

METHODS

Study design: Community based cross-sectional study.

Study area

Rural field practice area of a teaching hospital in South India.

Study population

Residents of the rural practice area, above the age of 18 years. Individuals with hearing or speaking difficulty, mentally challenged and people not willing to participate in the study were excluded.

Study period

3 months study period, from September 2018 to November 2018.

Sample size

Using the prevalence of injection use as 50% from a study in Ethiopia and using the formula $4Pq/l^2$ where p=50 q=100-p and l=20% (allowable error) l=20/100 ×

50 i.e. l=10, the sample size was estimated to be 100.[7] We were able to collect 119 individuals during the period of study

Sampling method

Out of the nine villages in the rural practice area, 3 villages were chosen through lots. Among these 3 villages, a total of 119 individuals were interviewed, chosen by simple random sampling (computer generator method) after obtaining the list of all the residents in those specified villages.

Method of data collection

The village leaders were explained about the nature and purpose of the study and after obtaining permission from the village leaders, a date was fixed to visit the village. A pre-validated, unstructured questionnaire was used to collect the data. It consisted questions about demographic data such as age, sex, education, marital status etc. and questions about injection usage such as type, frequency, route of administration was recorded. In addition, the awareness and attitude towards injections usage were recorded. Questions like their feeling after the injection, awareness of disease transmitted through needles, risk of infection was recorded. Data collections was carried out during the day time, if a particular chosen person is not willing to participate or not available at the time of interview, they were skipped and the next person on the list was interviewed. As there were no intervention on humans, ethical committee approval was not sought.

Statistical analysis

Data was entered in Excel spreadsheet (Microsoft, Redmond, WA, USA) and analysed using Statistical Package for Social Sciences (Version 20, IBM, Armonk, NY, USA) software. Proportions were used to describe Socio-demographic variables and information on injection use and practices. Association of the variables with injection use was measured using Chi-square test and a p value of less than 0.05 was considered to be statistically significant.

RESULTS

The present study done to assess the prevalence, attitude and awareness of injection use among 119 participants residing in 3 villages. The mean age of the study participant was 36.6 (S.D=11.9) Table 1 shows the distribution of study population based on their demographic variables. The majority of the participants were between the age group of 28-37 years (42, (35.53%). Gender of the participants was almost equally distributed, males 60 (50.4%) and females 59 (49.6%). Among the participants, married were 54 (45.4%) and unmarried were 55 (46.2%). Majority 52 (43.7%) completed secondary level of schooling while 8 (6.7%) were uneducated. Occupation data revealed that 49

(41.2%) were unskilled workers (41.2%) and 30 (25.2%) were unemployed.

Table 1: Distribution of study population based on their demographic variables.

Variables	Frequency	Percentage (%)
Age (in years)		
18-27	29	24.4
28-37	42	35.3
38-47	25	21.0
48-57	15	12.6
58 and above	8	6.7
Sex		
Male	60	50.4
Female	59	49.6
Education		
Primary	16	13.4
Secondary	52	43.7
High school	32	26.9
College	11	9.2
None	8	6.7
Occupation		
Skilled worker	40	33.6
Unskilled worker	49	41.2
Unemployed	30	25.2
Marital status		
Married	54	45.4
Single	55	46.2
Others	10	8.4
Total	119	100.0

Table 2 shows the distribution of study participants on the basis of injection usage and practices which more than half 67 (56.3%) used injections in the past 3 months. On assessing the reasons for injection use, most of the participants complained of muscle pain 37 (31.1%) followed by fever 20 (16.8%) and injury 5 (4.2%), among which 14 (11.7%) were prescribed NSAID'S 25(21.1%). Nearly $1/4^{th}$ i.e. 28 (23.5%) do not remember the medicine they were prescribed. Among those who had injections in the past 3 months 52 (43.7%) received Intramuscular (IM) injections. Since almost all of them utilised the Rural Health and training Centre for their primary care, nearly 30 percent (35) of the injections were administered by interns followed by Medical officer/Physician 22 (34.5%.)

Table 3 shows awareness and Attitude towards injection use. Out of 119 participants, 79 (59.7%) prefer injections while 28 (23.5%) prefer oral pills and the reason which more than half of the study participants gave was that it is more effective and faster acting while a few did not prefer invasive procedure. Also 19 (16%) said that they don't want a doctor who prescribes injection. Out of 119 study participants, when asked about their general feeling after an injection, majority 78 (65.5%) of them said they felt better after receiving the injection. When asked about

the risk of injection to the study participants, majority 43 (36%) said don't know while 22 (18.5%) said there is a risk of infection transmission and 13 (10.9% said there is a risk of allergic response. When asked about diseases transmitted through contaminated needles, 24 (20.2%) said HIV, 13(10.9%) said HBV and 24 (20.2%) said don't know.

Table 2: Distribution of study population based on variables regarding injection usage practices.

Variables	Frequency	Percentage (%)
Injection usage (past 3 months)		
Yes	67	56.3
No	52	43.7
Complaints		
Fever	20	16.8
Muscle pain	37	31.1
Injury	5	4.2
Others	5	4.2
Not applicable	52	43.7
Suggested by		
Physician	54	45.3
Patients	13	11
Not applicable	52	43.7
Name of the medicine		
NSAID	25	21.1
Multi-vitamin injections	14	11.7
Don't know/ remember	28	23.5
Not applicable	52	43.7
Administered by		
Physician	22	18.4
Nurse	10	8.5
Intern	35	29.4
Not applicable	52	43.7
Route of administration		
Intramuscular	52	43.7
Intravenous	15	12.6
Not applicable	52	43.7
Total	119	100.0

Table 4 shows association between the sociodemographic variables and injection use. It was observed that majority 36 (53.8%) of the injection users were males. A large portion of the injection users 20 (29.8%) were in the age group of 28-37. However, there was no statistical significance observed (p>0.05) It was also observed that nearly 40% (23) of the people who had injection had secondary level of education. On applying chi-square test, there was statistical significance (p=0.03). On association with occupational status and marital status, it was observed that the majority of the them were unskilled workers 26 (39%) and not married 33 (49%) respectively. Chi-square test showed no statistical significance (p>0.05).

Table 3: General awareness and attitude towards injection use among the study participants.

	Frequency	Percentage (%)
Treatment preference		
Injection	71	59.7
Oral pills	28	23.5
Both	10	8.4
None	10	8.4
Most effective route		
Intramuscular	77	64.7
Intravenous	38	31.9
No preference	4	3.4
Feeling after injection		
Feel cured	19	15.9
Feel better	78	65.5
Doesn't feel better at all	17	14.2
Feel worse	2	1.8
Not sure	3	2.5
Risk of injection		
Infection transmission	22	18.5
Allergic response	13	10.9
Others	4	3.4
None	37	31.1
Don't know	43	36.1
Awareness on diseases transmitted through needles		
HIV	24	20.2
HBV	13	10.9
Others	28	23.5
None	30	25.2
Don't know	24	20.2
Total	119	100.0

Table 4: Association between Socio-demographic variables and injection use among study participants.

		Injection use			Chi-square tests	P value
		Yes	**No**	**Total**		
Sex	Male	36	24	60		
	Female	31	28	59	0.672	0.46
Age	18-27	17	12	29		
	28-37	20	22	42		
	38-47	17	8	25	4.545	0.33
	48-57	10	5	15		
	58 & above	3	5	8		
Education	Primary	6	10	16		
	Secondary	26	26	52		
	High school	23	9	32	10.353	0.03*
	College	9	2	11		
	None	3	5	8		
Occupation	Skilled	25	15	40		
	Unskilled	26	23	49	0.941	0.62
	Unemployed	16	14	30		
Marital status	Married	28	26	54		
	Single	33	22	55	0.796	0.67
	Other	6	4	10		
Total		67	52	119		

*Statistically significant.

DISCUSSION

Prevalence of injection use

The present study cross-sectional study done among 119 participants to assess the prevalence of injection use showed that the prevalence was 56.3%. Similar study done in a South India state revealed that the proportion of injections given with a disposable syringe and needle was 35.4%.[8] In contrast a study done among the households in Varanasi, India revealed injections were given in 10% of the individuals.[9] Similar report was also obtained from a study done in Indonesia which showed the prevalence of injection use among the households to be 12%.[10]

A study done earlier among a population in rural Uganda showed the prevalence of injections to be 36.7%.[11] In our study the prevalence of injection rates was high when compared to the other studies this could be because, the operational definition for injection use in our study was any injection used in the past 3 months. The recall period in our study was of a longer duration when compared some of the other studies reviewed. In our study the prevalence of injection use is more among males. This was consistent with findings reported by Kahissay et al.[12]

Practice of injection use

In our study, it was also found that among those who had an injection in the study population, the majority received a NSAID injection especially diclofenac. This was similar to a study done by Alama et al in South Delhi hospital which showed that diclofenac was the most commonly used NSAID's.[13] Similar findings were also told in Nepal.[14] The reason for the high usage of NSAID's especially diclofenac could be due to the fact that nearly 30 percent of the population had presented with complaints of muscle pain before receiving injection. We also observed that 11.7 percent of the population received Multi-Vitamin injection. Gyawali et al from Nepal also reported 18.8 percentage use of Multi-vitamin injections.[14] This can be attributed to the fact that nearly 20 percent of the population are in the geriatric age group and there is a tendency for the geriatrics to opt for multivitamin injections.

Awareness and attitude towards injection use

Awareness of injection safety was also asked in the present study in which 20 percent of the study population were aware of the spread of HIV and 11 percent were aware of the spread of HBV thorough contaminated needles. This was in contrast to Khan et al where a majority knew the risk of transmission of HIV and Hep B.[15] A very high 20 percent of the population did not know about the disease transmitted through needles in our study population, this was in contrast to the study done by Kahissay et al.[12] In our study it was observed that a very high 60 percent of the study population preferred injection to oral pills for their treatment. This

was again consistent with Kahissay et al.[12] The reason given by the study population was they felt the action of the injection was lot quicker and faster. They also believed that this was more effective when compared to pills and sometimes the taste of the pills made them difficult to ingest certain medicines. About 80 percent of the felt cured and better after taking an injection. Li HK also reported there is a superior belief in the use injectable especially intravenous drugs.[16] Also, in our study the awareness of risk due to injections is very low with 36 percent of the population not having awareness. This was comparable to a study done Umar et al in Nigeria which showed that awareness on dangers associated with injections was poor.[17]

CONCLUSION

The present study done among 119 individuals showed that more than half of the study population had received at least one injection in the preceding 3 months. Generalized pain was the reason given by most of the individuals who had sought injection and thus diclofenac was the most commonly used injection, followed by multivitamin injections. Usage of injections was more among males. Nearly 60 percent of the individuals preferred injections to oral medicine owing to better and faster action. In addition, a lot of people also felt better after receiving injection. However, the awareness on the risk of injection and diseases transmitted through needles was low. The study concludes that there is a need to educate on the awareness of the risk transmitted through injection usage. Being a cross-sectional study with a limited sample size, the external validity of the study is limited.

Recommendations

We recommend that further studies are required to find about injection practices especially in rural areas as the usage in generally high. Health education on how long-term use of specific drugs can lead to several toxicities must also be given.

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