

Awareness regarding protective measures against side effects following long term corticosteroid therapy

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Abstract

Objective: To assess awareness (knowledge, attitude and practices) regarding protective measures for adverse events following long term use of corticosteroids

Study design: Cross sectional

Study duration and settings: Study was conducted at department of Medicine, Federal Government Service Hospital, Islamabad. Study duration was 6 months (January 2018 to June 2018)

Material and methods: A sample size of 150 patients was calculated using WHO calculator. Non probability consecutive sampling was used. Ethical approval and consent forms were taken patients were assessed for awareness through asking structured questions on knowledge, attitude and practices regarding protective measures. Data was analyzed with SPSS version 23. Chi-square test was applied p value ≤ 0.05 was considered significant.

Results: Total 150 patients were included in study. Mean age of patients was 39 years \pm 16.2 SD. There were 80 (53%) male and 70 (47%) female. Awareness was reported in 28 (19%) patients while 122 (81%) were not aware of protective measures. Awareness is significantly associated with occupation, attitude and practices ($p < 0.05$) while insignificantly associated with age, gender and knowledge ($p > 0.05$).

Conclusion: Significantly lower awareness regarding protective measures against adverse events of long term corticosteroid usage was found. However, awareness can be improved through conduction of workshops/ conferences related to corticosteroid use, adverse event and prevention of complications.

Key words: Awareness, protective measures, corticosteroid therapy, glucocorticoids, corticosteroids

Introduction:

Corticosteroids belongs to steroid hormones class, released by adrenal cortex.¹ Corticosteroids include both glucocorticoids and mineralocorticoids. However, simply glucocorticoids are referred as corticosteroids. Corticosteroids are responsible for diverse cellular functions (development, inflammation, homeostasis, cognition and metabolism) and carbohydrate metabolism.² Corticosteroids are most widely prescribed medicine worldwide due to its immune modulatory action.³ Prevalence of corticosteroids use in United States is 45%.⁴ Literature showed 55% prevalence of corticosteroids use in osteoporosis patients.⁵ Cost of corticosteroid

use is more than 10 billion USD/years, worldwide.⁶

Corticosteroids are most commonly used in numerous inflammatory and autoimmune infections including allergy, inflammatory bowel disease, septic shock rheumatoid arthritis, asthma and multiple sclerosis. However, corticosteroids have limited therapeutic benefits due to complications associated with dose and long term use of corticosteroids.⁷

The adverse events associated with long term use of corticosteroids include abdominal obesity, growth retardation, skin atrophy, avascular

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Table-1: Association between awareness, gender, age and occupation

Gender	Awareness		Total	P value
	No	Yes		
Male	67(44.7%)	13(8.7%)	80(53.3%)	0.41
female	55(36.7%)	15(10%)	70(46.7%)	
Age				
18-30 years	52(34.7%)	9(6%)	61(40.7%)	0.309
>30 years	70(46.7%)	19(12.7%)	89(59.3%)	
Occupation				
Public Job	64(42.7%)	5(3.3%)	69(46%)	0.001
Private Job	58(38.7%)	23(15.3%)	81(54%)	

Table-2: Association between awareness and knowledge

Knowledge		Awareness		Total	P value
		No	Yes		
Do you know about corticosteroids adverse events?	No	62(41.3%)	13(8.7%)	75(50%)	0.67
	Yes	60(40%)	15(10%)	75(50%)	
Did you have ever attended any workshop regarding corticosteroid use information?	No	70(46.7%)	16(10.7%)	86(5.3%)	0.98
	Yes	52(34.7%)	12(8%)	64(42.7%)	
Do you know about proper corticosteroid dose according to your diseases?	No	60(40%)	17(11.3%)	77(51.3%)	0.27
	Yes	62(41.3%)	11(7.3%)	73(48.7%)	
Do you know anything about protective measures against corticosteroid adverse events	No	74(49.3%)	16(10.7%)	90(60%)	0.73
	Yes	48(32%)	12(8%)	60(40%)	
Total		122(81.3%)	28(18.7%)	150(100%)	

Table-3: Association between awareness and attitudes

Attitude		Awareness		Total	P value
		No	Yes		
Is it safe to use corticosteroids for longer duration	No	66(44%)	6(4%)	72(48%)	0.002
	Yes	56(37.3%)	22(14.7%)	78(52%)	
Is it safe to use corticosteroids in high dose?	No	65(43.3%)	26(17.3%)	91(60.7%)	0.000
	Yes	57(38%)	2(1.2%)	59(39.3%)	
Did you consult any qualified physician before using corticosteroids?	No	68(45.3%)	5(3.3%)	73(48.7%)	0.000
	Yes	54(36%)	23(15.3%)	77(51.3%)	
Did you informed about adverse events of corticosteroids before prescription?	No	75(50%)	3(2%)	78(52%)	0.000
	Yes	47(31.3%)	25(16.7%)	72(48%)	

necrosis and infection, osteoporosis, diabetes mellitus and hypertension.⁸ Psychiatric complications after long term systemic corticosteroids therapy are also very common. A meta-analysis reported that 6% of patients had severe reaction while 28% had mild to moderate reaction after

corticosteroids therapy.⁹ However, mood disturbance, sleep and behavioral issues, frank delirium, psychosis and depression are most common adverse events of long term corticosteroids therapy.¹⁰

Awareness regarding adverse events prevention after long term corticosteroids is an emerging challenge for physicians. Cooper et al reported that most of time corticosteroids are recommended by pharmacists or quacks. However, the knowledge regarding corticosteroids use is as low as 15%.¹¹ Therefore it is very important to sensitize these individuals about possible complications of long term corticosteroid use. Limited data is available on awareness of corticosteroids complications associated with long term usage in Pakistan. So, present study aims to assess awareness (knowledge, attitude and practices) regarding protective measures for adverse events following long term use of corticosteroids.

Material and Methods:

A cross sectional study was conducted at department of Medicine, Federal Government Service Hospital, Islamabad. Study duration was 6 months (January 2018 to June 2018). Sample size of 150 patients was calculated with 95% confidence interval, population proportion 61% and absolute precision 8%.¹² Non probability consecutive sampling was used for recruitment of patients. Patients of age >18 years, both genders, using cortisosteroids in any form (oral or injectable) for duration >1 month were included in study. Exclusion criteria include congenital anomalies, mentally retarded individuals, patient's with immunocompromised diseases, breast feeding and pregnant women. Ethical approval was taken from ethical review board. Consents forms were taken from all patients. After selection, patients were administered a structured questionnaire. Data on knowledge, attitude and practices (likert scale) regarding awareness was collected. Data was analyzed using SPSS version 23. Quantitative (mean and standard deviation) variables and qualitative (frequency and percentages) variables were analyzed. Chi-square test was applied. P value ≤0.05

Table-4: : Association between awareness and practices

Practices		Awareness		Total	P value
		No	Yes		
Use of protective measures can reduce corticosteroids adverse events	No	53(35.3%)	18(12%)	71(47.3%)	0.04
	Yes	69(46%)	10(6.7%)	79(52.7%)	
Use of corticosteroids in low dosage can reduce adverse events	No	91(60.7%)	16(10.7%)	107(71.3%)	0.06
	Yes	31(20.7%)	12(8%)	43(28.7%)	
Short duration of corticosteroid usage could be safe	No	68(45.3%)	15(10%)	83(5.3%)	0.83
	Yes	54(36%)	13(8.7%)	67(44.7%)	
Community based awareness can improve corticosteroid usage related awareness	No	54(36%)	4(2.7%)	58(38.7%)	0.03
	Yes	68(45.3%)	24(16%)	92(61.3%)	
	Total	122(81.3%)	28(18.7%)	150(100%)	

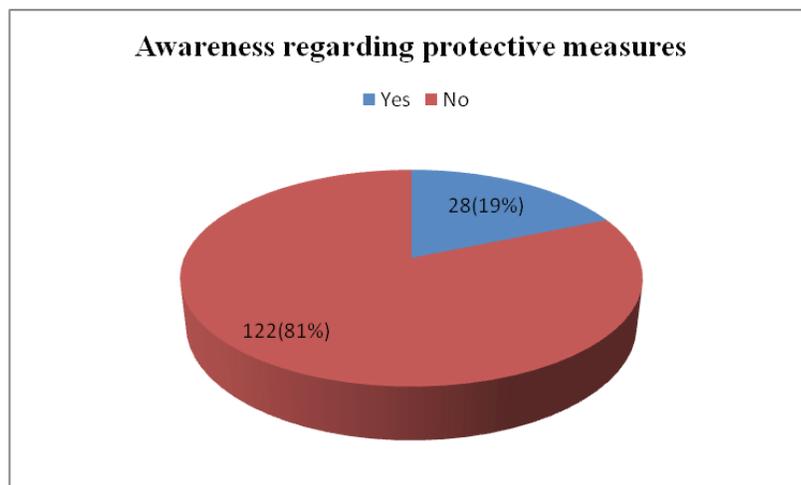


Figure. 1: Awareness of protective measures regarding adverse events following long term corticosteroid therapy

was considered significant.

Results:

Total 150 patients were included in study. Mean age of patients was 39 years±16.2 SD. There were 80 (53%) male and 70(47%) female. There were 61 (41%) patients in age group 18-30 years while 89(59%) patients in age group >30 years. Out of all 150(100%), 73(48.7%) were metric or lower, 50(33.3%) intermediate while 27(18%) were bachelors or above educated. 69(46%) patients were doing public job while 81(54%) were doing private jobs. Awareness was reported in 28(19%) patients while 122(81%) were not aware of protective measures as shown in Figure- 1.

An insignificant association between awareness, gender ($p=0.41$) and age ($p=0.309$) was found. Among all those who had private jobs were more aware about protective measures as compare to those who had public sector jobs (15.3% vs 3.3%, $p=0.001$) as shown in table 1.

Among all those who had awareness 28(18.7%), 15(10%) know about corticosteroids adverse events while 13(8.7%) did not know about corticosteroids adverse events ($p=0.67$). Among all those who had awareness 28(18.7%), 12(8%) had attended workshops regarding corticosteroids usage information while 16(10.7%) did not attended ($p=0.98$). Among all the aware individuals 28(18.7%), 11(7.3%) know about proper dose of corticosteroid according to their disease while 17(11.3%) did not know ($p=0.27$). Among all those who were aware 28(18.7%), 12(8%) know about protective measures against corticosteroids adverse events while 16(10.7%) did not know ($p=0.73$) as shown in table 2

Among all those who were aware 28(18.7%), 22(14.7%) think that it is safe to use corticosteroids for long duration while 6(4%) thinks its not safe ($p=0.002$). Among all those who were aware 28(18.7%), 2(1.2%) think that its safe to use corticosteroids in high dose while 26(17.3%) don't agree with statement ($p=0.000$). Among all those who were aware 28(18.7%), 23(15.3%) consulted physicians before using corticosteroids while 5(3.3%) did not consulted ($p=0.000$). Among all those who were aware 28(18.7%), 25(16.7%) were informed about corticosteroids adverse events before prescription while 3(2%) were not informed ($p=0.000$) as shown in table 3

Among all those who were aware 28(18.7%), 10(6.7%) reported that use of protective measures reduce corticosteroids adverse events while 18(12%) reported that use of protective measures did not reduce adverse events ($p=0.04$). among all those who had awareness 28(18.7%), 13(8.7%) reported that its safe to use corticosteroids for short duration while 12(8%) reported that its not safe ($p=0.83$). Among all those who were aware 28(18.7%),

24(16%) reported that community based services can improve awareness regarding corticosteroid usage while 4(2.7%) reported that it cannot improve ($p=0.03$) as shown in table 4.

Discussion:

Total 150 patients were included in present study. Mean age of patients was 39 years \pm 16.2 SD. Awareness was reported in 28(19%) patients while 122(81%) were not aware of protective measures. Bledsoe et al reported 45% awareness regarding corticosteroids use in Indonesia.¹³ Grad et al reported 55% awareness regarding corticosteroids adverse events in Nepal.¹⁴ Pratt et al reported 66% awareness regarding protective dose and duration of corticosteroid use in United States.¹⁵

Present study found out that among all those who had private jobs were more aware about protective measures as compare to those who had public sector jobs (15.3% vs 3.3%, $p=0.001$). However, Hudson et al reported that occupation is significantly associated with awareness regarding protective measures following corticosteroids complications ($p=0.000$).¹⁶ Similar finding were reported by John et al. they reported that workers had low awareness regarding adverse events of corticosteroids while officers had moderate to high awareness ($p=0.005$).¹⁷

Present study reported that knowledge had insignificant association with awareness ($p>0.05$). However, Groeneweg et al reported contradictory finding. They reported that knowledge regarding complication associated with corticosteroids significantly predict use of safety measure among patients ($p=0.00$).¹⁸

Present study reported that attitude of patients are significant associated with awareness ($p<0.05$). Samara singhe et al reported that 55% patients had positive attitude regarding protective measures against corticosteroids complication, 40% had negative attitude and 5% don't know about corticosteroids.¹⁹ A similar study reported that 59% patients agree that positive attitude regarding complication associated with corticosteroid can be reduced with protective

measure ($p=0.00$).²⁰

Present study reported among all those who were aware 28(18.7%), 10(6.7%) reported that use of protective measures reduce corticosteroids adverse events while 18(12%) reported that use of protective measures did not reduce adverse events ($p=0.04$) and community based services can improve practices ($p=0.03$). Rathi et al reported that 30% patients are practicing protective measures against corticosteroids complication.²¹ Coondoo et al reported that 23% patients in China shown positive practices regarding prevention of complication after corticosteroids therapy.²²

Limitation: small sample size and conduction at single center limits generalizability of study.

Conclusion:

Significantly lower awareness regarding protective measures against adverse events of long term corticosteroid usage was found. However, awareness can be improved through conduction of workshops/conferences related to corticosteroid use, adverse event and prevention of complications.

Conflict of interest: None

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Role and contribution of authors:

Dr Sadia Muhammad Azam Khan, Designing and data analysis

Dr Bilal Sethi, data analysis and writes up

Dr Nadem Malik, data collection and analysis

Dr Ishtiaq Anwar, final review and data acquisition

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