EFFECTIVENESS AND TREATMENT OUTCOME OF ESWL AS INTERVENTION METHOD AT SHAAFI HOSPITAL, MOGADISHU SOMALIA

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ABSTRACT

Renal stone is a most common clinical disorder affecting up to 5% of the general population in the USA. The prevalence of renal stone disease has been rising in both sexes, being estimated that about 5% of American women and 12% of men will develop a kidney stone at some time in their life, however, in certain areas of the world, as in the Middle East, the lifetime risk appears to be even higher, There has been heightened awareness of renal stone disease in children as well, Recurrence rates of 50% after 10 years and 75% after 20 years have been reported Epidemiological data on urolithiasis in sub-Saharan Africa are rare because research resources throughout most of the continent are poor. South Africa is an exception in this concern. Stone disease has been reported in several countries. Epidemiological factors in these regions are not unusual. However, in a few countries the disease is extremely rare. The absence of stones can be attributed to epidemiological factors in all regions except South Africa, where stone shortage arises because of racial differences between the white and black population groups. Routine urinary biochemical risk factors cannot account for this phenomenon. However, the protective capacity of urinary proteins may play a role in this regard The aim of this study were to investigate factors associated kidney stone and effectiveness and treatment outcome of ESWL as intervention method in shaafi hospital Mogadishu Somalia The specific objectives of this study were . To determine factors associated kidney stone at shaafi hospital. To asses availability and treatment outcome with renal calculi among adult patient in shaafi hospital in hodan district. Methodology used a descriptive cross-sectional design and the study area is shaafi hospital Mogadishu Somalia A total 40 respondents was purposively selected from 40 respondents The data were collected during 1-14 days may 2018 using structured questionnaire, . The data was compiled and analyzed by using SPSS version 20. The Result reveal that the majority of the respondents (65.0%) were male and the majority of the respondents (32.5%) were between 18-25 years and mostly respondent (70.0%) of the respondent said yes when asked the question saying do you eat food such as peanut red meat poultry eggs and seafood sugar sweetened foods that have the risk of kidney stone. (42.9%) of the respondent said red meat when asked the question saying if yes what food or diet. (50.0%) of the respondent said 1-2 litter of water when asked the question saying what is the level of your fluid or water intake. (55.0%) of the respondent said lower calceal when asked question saying The location of your kidney stone (65.0%) of the respondent were said 1-10mm when asking question saying what is the characteristic of the stone after the ESWL, intervention with size. The study recommends. To Changes in dietary habits, and changes in lifestyle and increase water intake To The composition of previous stone dietary advice will vary additional medication

may be necessary for patient with high risk profile. To educate health workers to consult the patient with kidney stone to visit in the machine to increase awareness of the patient of important of machine during kidney stone.

Keywords: *kidney stone, effectiveness, treatment, outcome.*

1.0 BACKGROUND

Changes in dietary habits and lifestyle are suggested to contribute markedly to the rise in the prevalence and incidence of urolithiasis during the past decades. Insufficient fluid intake and diets rich in animal protein are considered to be important determinants of stone formation. Overweight and associated dietary pattern additionally contribute to the increasing incidence and prevalence of stone disease. Reduction of overweight through extreme fasting or high-protein weight-loss diets, e.g. Atkins diet, also appear to affect stone formation. Although there is evidence that changes in dietary habits can reduce urinary risk factors and the risk of stone formation, further randomized controlled clinical trials are necessary to evaluate long-term effects of dietary interventions on stone disease. (Siener, R. (2006).

Extracorporeal shock wave lithotripsy (ESWL) is widely used worldwide to treat kidney stone because it is without invasive and can be done on an outpatient basis. However, not all patients are treated successfully. The success of kidney stone treatment by ESWL depends on several factors. ESWL is the treatment of choice for patients with kidney stones. The mechanism of ESWL is disintegration of the stone into particles by producing mechanical compressive, tensile forces, and transient cavitation at the stone's surface with shock wave energy, followed by the particles passing down through the ureter. The success rate of ESWL depends on several factors, such as stone size, stone composition, and stone number. (Lojanapiwat *et, al* (2011).

The specific objectives of this study were

1- To determine factors associated with kidney stone at shafi hospital
2- To assess a violability kidney stone at shaafi hospital
3- Treatment outcome with of ESWL as intervention method shafi hospital

2.0 METHOLOGY

2.1 RESEARCH DESIGN

The researchers was used a quantitative method of research designs, this study was used cores-sectional descriptive study design

2.2 STUDY AREA &TARGET POPULATION

Target population was kidney stone patients attending in Shaafi at Hodan District.

2.3Sample size and sample procedure

The sample size was nonprobability technique; the study was precipitate 40 of kidney stone respondents who attended for shafi hospital during 14 days of data collection phase from day 1 to 14 of May 2018. The total patient attending at the shafi hospital per day was irregular this study was collected using questionnaire instrument. The selection of this tool has been guided by the nature of data to be collected, the time available as well as by the objectives of the study and the overall aim of the study.

2.4 DATA ANALYSIS

Data were analyzed using SPSS 20.0(statistically package for the social science were used the researchers used descriptive statistics to describe the variables in this study.

2.5 Ethical considerations

The study concerns survival and development of the patients, the researcher will receive authorization letter from Jamhuriya university for science and technology and as well as Shaafi hospital for them to be allowed that they can carry out their research and wisely The Participants are completely voluntary Informed consent will provide to the subjects with information concerning the purpose of the study, any information collected from the subjects was kept entirely private.

3.0 Results

The results of the study were presented using frequency tables and figures.

3.1 when were you diagnosed kidney stone?

when were you diagnosed kidney stone	Frequency	Percent%
2017	9	22.5%
2018	31	77.5%
Total	**40**	**100.0**

Table 3.1 when were you diagnosed kidney stone?

Majority respondents were asked when were you diagnosed kidney stone? And replied follows 31 (77.5%) said 2018 followed by 9 (22.5%) said 2017.

3.2 Do you think obese can contributed kidney stone?

Do you think obese can contributed kidney stone?	Frequency	Percent%
Yes	35	87.5%
No	5	12.5%
Total	**40**	**100.0**

Table 3.2 Do you think obese can contributed kidney stone?

Respondent were asked do you think obese can contributed kidney stone**?** Were replied as follows 35(87.5%) were said yes and other rest as follows 5(12.5%) were said no.

3.3 Do you eat food such as peanut red meat poultry eggs and seafood sugar sweetened foods that have the risk of kidney stone?

you eat food such as peanut red meat poultry eggs and seafood sugar sweetened foods that have the risk of kidney stone?	Frequency	Valid Percent%
Yes	28	70.0%
No	12	30.0%
Total	**40**	**100.0**

Table 3.3 Do you eat food such as peanut red meat poultry eggs and seafood sugar sweetened foods that have the risk of kidney stone?

Respondent asked do you eat food such as peanut red meat poultry eggs and seafood sugar sweetened foods that have the risk of kidney stone. And replied as follows 28(70.0%) were said yes and other rest as follows 12(30.0%) were said no.

3.4 if yes what food or diet?

if yes what food or diet?	Frequency	Valid Percent%
red meat	12	42.9%
Egg	7	25.0%
Seafood	2	7.1%
sugar sweetened	6	21.4%
Peanut	1	3.6%
Total	**28**	**100.0**

Table 3.4 if yes what food or diet?

Respondent asked if yes what food or diet? And replied as follows 12(42.9%) were said red meat and other follows 7(25.0%) were said eggs and other follows 6 (21.4%) were said sugar sweetened and other follows as 2(7.1%) were said seafood and other follows 1(3.6%) were said peanut.

3.5 What is the level of your fluid or water intake?

What is the level of your fluid or water intake?	Frequency	Percent%
<1 litter	16	40.0%
1-2 litter	20	50.0%
2-3 litter	4	10.0%
Total	**40**	**100.0**

Table 3.5 what is the level of your fluid or water intake?

Respondent asked what is the level of your fluid or water intake. And replied as follows 20(50.0%) were said 1-2litter of water intake and other follows 16(40.0%) were said <1litter water intake other rest follows 4(10.0%) 2-3litter water intake.

3.6 Have you ever diagnosed recurrent urinary tract infection?

you ever diagnosed recurrent urinary tract infection?	Frequency	Percent%
Yes	34	85.0%
No	6	15.0%
Total	**40**	**100.0**

Table 3.6 Have you ever diagnosed recurrent urinary tract infection?

Respondent asked have you ever diagnosed recurrent urinary tract infection. And replied as follows 34(85.0%) were said yes other rest follows 6 (15.0%) were said no.

3.7 characteristic of stone?

characteristic of stone	Frequency	Percent%
Bilateral	39	97.5%
Multiple	1	2.5%
Total	**40**	**100.0**

Table 3.7 characteristic of stone?

Respondents were asked, characteristic of stone? And replied as follow 39 (97.5%) said bilateral, and the rest 1 (2.5%) were multiple

3.8 The location of your kidney stone?

The location of your kidney stone?	Frequency	Percent%
lower calyx	22	55.0%
middle calyx	9	22.5%
upper calyx	3	7.5%
renal pelvis	6	15.0%
Total	**40**	**100.0**

3.8 The location of your kidney stone?

The majority of respondent were follows as 22(55.0%) were lower calyx and other follows as 9(22.5) were middle calyx and other follows as 6 (15.0%) were renal pelvis and other rest follows as 3(7.5%) were upper calyx.

3.9 What is the primary cause of your kidney stone?

What is the primary cause of your kidney stone?	Frequency	Percent%
contamination water	17	42.5%
low fluid intake	23	57.5%
Total	**40**	**100.0**

Table 3.9 what is the primary cause of your kidney stone?

Respondent asked what the primary cause of your kidney stone is. and replied follows as 23(57.5%) were said low fluid intake and other rest follows as 17(42.5) were said contamination water.

3.10 What is the characteristic of the stone after the ESWL, intervention with size?

what is the characteristic of the stone after the ESWL, intervention with size?	Frequency	Percent%
1-10mm	26	65.0%
11-20	10	25.0%
21-30	4	10.0%
Total	**40**	**100.0**

Table 3.10 what is the characteristic of the stone after the ESWL, intervention with size?

Respondent asked what is the characteristic of the stone after the ESWL, intervention with size. And replied as follows 26(65.0%) were said 1-10mm and other follows as 10(25.0%) were said 11-20mm and other rest follows as 4(10.0%) were said 21-30mm.

3.11 What is the characteristic of the stone after the ESWL, intervention with number?

what is the characteristic of the stone after the ESWL, intervention with number?	Frequency	Percent%
multiple stone	24	60.0%
single stone	16	40.0%
Total	**40**	**100.0**

Table 3.11 what is the characteristic of the stone after the ESWL, intervention with number?

Respondent asked 4.36what is the characteristic of the stone after the ESWL, intervention with number? and replied as follows 24(60.0%) were said multiple stone and other rest follows as 16(40.0%) were said single stone.

4.0 DISCUSION

This chapter contains the interpretation of the results. The findings of the research should be compared and contrasted with those of previous studies presented in the literature review. The purpose of this chapter is to discuss the findings of the research.

31 out 40 (77.5%) of the respondents said in 2018 when asked the question saying when were you diagnosed kidney stone 31 (77.5%) of the respondents said no when asked the question saying did any of you primary family previously diagnosed kidney stone.

39 out 40(97.5%) of the respondent said no when asked the question saying Have you every diagnosed anatomical abnormality on your kidney 34(85.0%) of the respondent said no when asked the question saying do you smoke or have history of previous smoking 3(60.0%) of the respondent are said 5-10 years smoker when asked the question saying if yes how long of smoker.35(87.5%) of the respondent said yes when asked the question saying do you think obese can contributed kidney stone 34(85.0%) of the respondent said no when asked the question saying do you have history of diabetes 4(66.7%) of the respondent said 1-5 yeas when asked the question saying If yes how long 28(70.0%) of the respondent said no when asking question saying does one of primary families have history of diabetes 3(75.0) of the respondent said 1-5 yeas when asked the question if yes how long 38(95.0%) of the respondent said no when asked the question do you have history of hypertension? 2(66.7%) of the respondent said 1-5 years 4(66.7%) of the respondent said yes when asked the question saying if yes do you regularly take you antihypertensive medication 28(70.0%) of the respondent said yes when asked the question saying do you eat food such as peanut red meat poultry eggs and seafood sugar sweetened foods that have the risk of kidney stone 12(42.9%) of the respondent said red meat when asked the question saying if yes what food or diet 20(50.0%) of the respondent said 1-2 litter of water when asked the

question saying what is the level of your fluid or water intake.22(55.0%) of the respondent said yes when asked the question saying do you regular take fiber food.

In literature kidney stone affect 10-12% of the population in industrialized countries. The average life time risk of stone formation has been reported in the range of 5-10%. Recurrent stone formation is a common part of the medical care of patients with stone diseases. This disorder is multi factorial and is strongly related to dietary lifestyle habits or practices. Increased rates of hypertension, diabetes and obesity which are linked to nephrolithiasis, also contribute to an increase in stone formation. Hence, this study was undertaken to find out the prevalence among kidney stone patient the risk factors influencing the development of kidney stones especially Family history, inadequate fluid intake, Stress, Over weight and Obesity, Dietary habits and lifestyle modifications, association with other diseases (diabetes, hypertension) hence In this study we could establish a significant relationship between high intake of animal protein, sodium, sugar, coffee and tea. But we have not found a significant relationship between soft drinks and kidney stone. Diet plays an important role in the development of kidney stones, especially in patients who are predisposed to this condition. A diet high in sodium, fats, meat and sugar, low in fiber, vegetable protein and unrefined carbohydrates are increase the risk of kidney stones. Oxalate is found in green beans, tomatoes, nuts, chocolates and tea which increase the risk for kidney stones. Vegetarians have a decreased risk of developing stones. Studies have shown that even among meat eaters those who ate higher amounts of fresh fruits and vegetables had a lower incidence of stones. Studies have shown that even among meat eaters those who at higher amounts of fresh fruits and vegetables had a lower incidence of stones. (Thomas Walter (2016)

22(55.0%) of the respondent said lower calceal when asked question saying The location of your kidney stone 26(65.0%) of the respondent were said 1-10mm when asking question saying what is the characteristic of the stone after the ESWL, intervention with size 24(60.0%) of the respondent said multiple stone when asked the question saying what is the characteristic of the stone after the ESWL, intervention with number.

In literature extracorporeal shock wave lithotripsy (ESWL) is widely used worldwide to treat kidney stone because it is without invasive and can be done on an outpatient basis. However, not all patients are treated successfully. The success of kidney stone treatment by ESWL depends on several factors. ESWL is the treatment of choice for patients with kidney stones. The mechanism of ESWL is disintegration of the stone into particles by producing mechanical compressive, tensile forces, and transient cavitation at the stone's surface with shock wave energy, followed by the particles passing down through the ureter. The success rate of ESWL depends on several factors, such as stone size, stone composition, and stone number. In contrast, previous studies found that age, kidney morphology, and congenital kidney anomalies had a significant impact on the success rate. Several studies indicated that the stone size strongly predicted ESWL success. ESWL was the best treatment for stones less than 2 cm in size. In the present study, small stone size was the strongest factor, with an adjusted relative risk ratio of 1.52. Small stones (size < 15 mm) had higher success rates than large stones (size > 15 mm) because shock wave energy more easily fragmented the smaller stones than the large stones. Previous studies reported that small stones had a success rate of 91% with stone size of 2 cm or smaller and large stones had success rates ranging from 50% to 70% with a stone size of 2-3 cm. concluded that stone size could predict outcome of ESWL, rather than lower pole caliceal anatomy. The location of stone is one of the most common factors

for success following ESWL. Several studies concluded that stone location was a predictor of ESWL success rate Stone location in the renal pelvis had the highest treatment success compared to other locations. In addition, the results of the present study by multivariable analysis showed that the stone location was a significant prognostic factor. (Chongruksut *et, al*(2011)

5.0 Conclusion

The result we found based on the respondents by the factors associated kidney stone as indicate that the (60.0%) of the respondent are said 5-10 years smoker ,(87.5%) of the respondent said yes when asked the question saying do you think obese can contributed kidney stone.
(70.0%) of the respondent said yes when asked the question saying do you eat food such as peanut red meat poultry eggs and seafood sugar sweetened foods that have the risk of kidney stone (42.9%) of the respondent said red meat when asked the question saying if yes what food or diet. (50.0%) of the respondent said 1-2 litter of water when asked the question saying what is the level of your fluid or water intake,(55.0%) of the respondent said yes when asked the question saying do you regular take fiber food mostly of respondent poor in lifestyle.

The result we found was based on respondent by the availability and treatment outcome with renal calculi, that the (55.0%) of the respondent said lower calceal when asked question saying The location of your kidney stone (65.0%) of the respondent were said 1-10mm when asking question saying what is the characteristic of the stone after the ESWL, intervention with size (60.0%) of the respondent said multiple stone when asked the question saying what is the characteristic of the stone after the ESWL, intervention with number mostly of respondent were good outcome.

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