



SMU
Sikkim Manipal University



SMU Medical Journal

ISSN : 2349 – 1604 (Volume – 2, No. 1, January 2015) Research article

Epidemiological Factors Affecting the Patients with Esophageal Varices; Cross-sectional Facility Based Study 2013; Gezira state, Sudan

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Manuscript received: 23.10.2014

Manuscript accepted: 28.11.2014

Abstract

Esophageal varices are a consequence of portal hypertension, which is common in Gezira state, Sudan because of higher prevalence of Schistosomiasis. Patients with esophageal varices have a strong tendency to develop life threatening bleeding. The study design is a cross-sectional descriptive facility based design. The main objective was to identify the epidemiological factors affecting esophageal varices patients in Gezira center 2013. 309 patients attended to the center during the study period were interviewed. 39.8% of study subjects were farmers. 77% were resident in rural areas. 61.2% have primary education. 75% attended to the center because of Sclerotherapy sessions, and 33% reported that the services were expensive. Two third of patients stated that the services cost was affordable; 15% of patients reported rebleeding.

Socio-demographic characteristics were contributing factors to the patients with bleeding esophageal varices. The center services were affordable. Rebleeding is the commonest complication.

Key words: Portal hypertension, esophageal varices, and endoscopy.

Introduction

Esophageal varices are extremely dilated sub mucosal veins in the lower esophagus. They are most often a consequence of portal hypertension, commonly due to fibrosis. Patients with esophageal varices have a strong tendency to develop bleeding. Esophageal varices are diagnosed with endoscopy ^{(1) (2)}.

Approximately 50% of patients with cirrhosis develop gastro esophageal varices. Gastric varices are present in 5–33% of patients with portal hypertension. Approximately 4–30% of patients with small varices will develop large varices each year and will, therefore, be at risk of bleeding. At the time of diagnosis, approximately 30% of cirrhotic patients had esophageal varices, reaching 90% after approximately ten years. Bleeding from esophageal varices is associated with a mortality rate of at least 20% at six weeks, although bleeding ceases spontaneously in up to 40% of patients ⁽³⁾.

Regarding the prognosis in patients with esophageal varices approximately 30% of patients with esophageal varices will bleed within the first year after diagnosis. The mortality resulting from bleeding episodes depends on the severity of the underlying liver disease. The mortality resulting from any bleeding episode may range from < 10% in well-compensated cirrhotic patients to > 70% of those in the advanced cirrhotic stage. The risk of re-bleeding is high, reaching 80% within one year. Patients with a hepatic venous pressure gradient > 20 mm Hg within 24 h of variceal hemorrhage, in comparison with those with lower pressure, are at higher risk for recurrent bleeding within the first week of admission, or of failure to control bleeding (83% vs. 29%) and have a higher 1-year mortality rate (64% vs. 20%). Approximately 60% of untreated patients develop “late rebleeding ” within 1–2 years of the index hemorrhage ⁽³⁾.

Schistosomiasis is the most common cause of varices in the setting of developing countries in Egypt or the Sudan, for example. In absolute numbers, it may be a more common cause than liver cirrhosis. In the Sudan, there are villages in which over 30% of the populations have varices. Their liver function is well maintained. They rarely decompensate and do not develop hepatocellular carcinoma (HCC). Bleeding from varices is the main cause of death in these patients. If the varices are eradicated, the patients can survive more than 25 years ⁽³⁾.

Endoscopic variceal sclerotherapy (EVS) is a procedure used to treat esophageal bleeding. The

procedure involves introducing a flexible endoscope into the esophagus to inject sclerosing agents into the varices. Varices are enlarged veins in the esophagus that bleed and have fatal effects in up to 50 percent of patients. The sclerosing agent destroys varices and slows thrombosis, which stops esophageal bleeding ⁽⁴⁾.

Complications of sclerotherapy, while rare, include venous thromboembolism, visual disturbances, allergic reaction ⁽⁵⁾, thrombophlebitis, skin necrosis, and hyper pigmentation. Most complications occur due to an intense inflammatory reaction to the sclerotherapy agent in the area surrounding the injected vein. In addition, there are systemic complications that are now becoming understood. These occur when the sclerosants travels through the veins to the heart, lung and brain. A recent report attributed a stroke to foam treatment, although this involved the injection of an unusually large amount of foam ⁽⁶⁾.

A retrospective study to evaluate the outcome of endoscopic injection Sclerotherapy in the management of bleeding esophageal varices due to portal hypertension in Sudan was conducted in National Centre for Gastrointestinal and Liver Disease, Ibn Sina Hospital. A total of 1070 patients over a period of 10 years (1986-1996) were studied. There were 904 males (84.5%) and 166 females (15.5%). The cause of portal hypertension was Schistosoma periportal fibrosis (PPF) in 999 (93.3%) patients. A total of 100 (9.4%) patients presented with bleeding, which occurred after surgery. Full obliteration of varices required a mean of 4 sessions with a range of 2-6. 462 (43.2%) have been followed up until a complete sclerosis of varices. This study provides evidence that endoscopic injection Sclerotherapy is an essential component in the management of bleeding esophageal varices caused by portal hypertension. It is a feasible and a cost-effective therapeutic strategy in Sudan ⁽⁷⁾.

Material and methods

The study design was a cross-sectional descriptive facility based aimed to identify the epidemiological factors affecting the esophageal varices patients in the Gezira center for GIT endoscopy and laparoscopic surgery 2013. The center is one of the specialized Centers which implemented outside the Khartoum Capital of Sudan. It provides diagnostic and curative services for patients in Gezira State and other neighboring States. A total of 309 patients - representing all esophageal varices patients attended to the center during the last quarter 2013 - were carefully

interviewed by using structured pretested questionnaire. The questionnaire included a group of variables like age, sex, residence, occupation, availability of latrines, water supply, coverage of health facility. It also includes time of Schistosomiasis infection, exposure to treatment, main complaint, exposure to blood transfusion, number of Sclerotherapy sessions; complication occurred and follow up frequency. Newly diagnosed patients were excluded from the study sample as well as patients with other causes of upper GIT bleeding such as peptic ulcer, gastric ulcer, and malignancies. Data was analyzed by using statistical package for social sciences (SPSS) version (20). The results were presented in a simple percentage form. Ethical clearance and authority to carry out this study was obtained from Sudan Medical Specialization Board. Informed form was used to have the participant's consent to be enrolled in the study. The form was in a simple Arabic language to facilitate understanding. Privacy was secured on interviewing. Confidentiality of information taken was guaranteed. Permission letter was obtained from the head of the Gezira Center for G.I.T Endoscopic and Laparoscopic Surgery.

Results and Discussion

A total of 309 patients were enrolled in the study. Most of them (77.7%) were male with male: female ratio of 2.4: 1. More than third of Sclerotherapy treated patients (39.8%) were farmers. More than half (61.2%) of Sclerotherapy treated patients were reaching the primary school. The health insurance fund covered about one third (32%) of sclerotherapy treated patients. Most (83.5%) of Sclerotherapy treated patients had latrine in their houses, and most (85.4%) of sclerotherapy treated patients had tap water in their houses. More than three quarters (77%) of sclerotherapy treated patients had a health facility in their residential areas. See the table (1).

About three quarters of sclerotherapy treated patients came to the Center to receive sclerotherapy session. Slightly less than one third (32%) of sclerotherapy treated patients complain of hematemesis as Schistosomiasis symptom and almost the same proportion (32%) of them complain of bloody stool. Most (85.4%) of sclerotherapy treated patients received blood during their past medical history. More than two fifths (44.7%) of sclerotherapy treated patients evaluated the services cost of the Center as cheap while about one third (33%) of them evaluated

it as expensive. Almost one in each seven (14.6%) of sclerotherapy treated patients complained of bleeding. One in each fourteen (6.8%) of them complains of chest pain after sclerotherapy sessions and fortunately most of them (78.6%) had no complications. See the table (2).

In 2013, a total of 309 patients attended to the Center because of esophageal varices were interviewed. Most of them were male; this may be due to their work in the agricultural schemes as farmers, so they were more exposed to water than female. This result is similar to many studies that carried out in this group in Sudan ⁽⁷⁾⁽⁸⁾⁽⁹⁾. They were different in occupation; most of them were farmers, this can be justified by that fact, farmers were more exposed to Schistosoma infection and esophageal varices because of their continuous water contact in agricultural scheme. The interviewed patients were different in educational status. Most of them were reaching only the primary level of education while about one fifth of them were illiterate, this fact made the process of health education and communication is difficult and needs more effort. Slightly less than one third of patients were covered by health insurance, this lead to increase services utilization because sclerotherapy and related medical services were provided freely for insured patients. The houses where the interviewed patients lived were in good sanitation condition, in which there were latrines, and there was tap water. The current situation may reflect the effort of the Schistosomiasis control program in environmental sanitation and provision of safe water supply in Gezira State citizens. Also, we found an accessible health facility in most of the patient's residence; these facts reflect relatively good coverage of health facilities in most affected areas. It may also assist the Schistosomiasis control program and other stakeholders in the implementation of the upcoming interventions towards Schistosomiasis and its complication in Gezira State. Hematemesis discovered the initial Schistosoma infection in about one third of patients and bloody stool in another third of them. The hematemesis is not a symptom of Schistosomiasis. It is an advanced symptom of its complication; this means one third of Schistosomiasis patients were not discovered till they reached the advanced stage of its complication. This fact should be considered as strong justification for health authority to adopt active screening programs in these areas in order to detect those patients earlier before they reached the stage of bleeding esophageal varices putting in mind that more than a third of them

were neither received any treatment for Schistosomiasis nor exposed to Schistosomiasis mass chemotherapy before. Blood transfusion was essential in most of the sclerotherapy treated patients before sessions. Most of them were received 2.8 units of blood on average (1- 26 units of blood) before the first sclerotherapy session and in between sessions. It reflects good resuscitation services delivered to them, although they received these services outside the Center. Also, the recurrent blood transfusions for them increase the possibility of having a different complication of blood transfusion. Regarding the outcome of sclerotherapy done to the patients interviewed most of them reported no complication. One over each seven of them complained of rebleeding, and one over each fifteen of them complained of retro sternal chest pain. The current results are compatible with the literature that show a significant complications will develop in 10% to 15% of sclerotherapy treated patients ⁽¹⁰⁾. Slightly less than one half of patients describe the cost of services delivered as cheap while about one fifth of them describes its cost as suitable and one third of them as expensive. These facts reflect affordable health services provided in the Gezira Center for GIT endoscopy and laparoscopic surgery towards patients with esophageal varices.

Conclusion

The conclusion of this study is that Socio-demographic characteristics were contributing factors to the patients with bleeding esophageal varices. The center services were affordable. Rebleeding is the commonest complication.

Acknowledgment

The author would like to thank the community medicine council in Sudan Medical Specialization Board for adopting the idea of the research. The gratitude is also extended to the Gezira center for gastrointestinal tract endoscopy and Laparoscopic Surgery for their valuable help and cooperation.

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Table (1) shows the socio-demographic characteristics of study subjects

Serial	Variable	N (%)
1	Sex	Male 240(77.7%)
		Female 69(22.3%)
2	Age group	Below 20 years 15(4.9%)
		21-30 years 51(16.5%)
		31-40 years 87(28.2%)
		41-50 years 75(24.3%)
		51-60 years 45(14.6%)
		61+ 36(11.7%)
3	Educational status	Illiterate 60(19.4%)
		Primary 189(61.2%)
		High secondary 45(14.6%)
		Graduated 15(4.9%)
4	Occupation	Labor 51(16.5%)
		Employee 12(3.9%)
		Farmer 123(39.8%)
		Free jobs 45(14.6%)
		Housewife 51(16.5%)
		Student 9(2.9%)
		Without job 18(5.8%)
5	Health Insurance status	Insured 99(32.0%)
		Not insured 210(68.0%)
6	Availability of health facility	Available 237(76.7%)
		Not available 72(23.3%)
7	Availability of latrine	Available 258(83.5%)
		Not available 51(16.5%)
8	Source of drinking water	Tap 264(85.4%)
		Pit 9(2.9%)
		Water pump 21(6.8%)
		Irrigation canal 12(3.9%)
		Others 3(1%)

Table (2) shows epidemiological factors related to esophageal varices:

Serial	Variable	N (%)
1	Main complaint	
	Hematuria	21(6.8%)
	Bloody stool	99(32.0%)
	Dysuria	30(9.7%)
	Abdominal Pain	60(19.5%)
2	History of Schistosomiasis treatment	
	Hematemesis	99(32.0%)
3	Schistosomiasis mass chemotherapy	
	Treated	204(66.0%)
4	History of blood transfusion	
	Not treated	105(34.0%)
5	Schistosomiasis mass chemotherapy	
	Applied	195(63.1%)
6	History of blood transfusion	
	Not applied	114(36.9%)
7	Cause of attendance	
	Received blood	264(85.4%)
8	Complications of chemotherapy	
	Not received blood	45(14.6%)
9	Disability after sclerotherapy	
	Session	231(74.8%)
	Follow up	78(25.2%)
10	Services cost assessment	
	Bleeding	45(14.6%)
	Chest pain	21(6.8%)
11	Disability after sclerotherapy	
	No complications	243(78.6%)
	Able to perform routine activities	294(95.1%)
12	Services cost assessment	
	Not able to perform routine activities	15(4.9%)
	Cheap	138(44.7%)
13	Services cost assessment	
	Suitable	69(22.3%)
	Expensive	102(33%)

Authors Column



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