Outcomes of Two Teaching Methods on Creating Awareness for Hepatitis C Patients Adherent to Therapeutic Regimen

[1]Soad M. Hegazy, [2]Mimi M. Mekkawy, [3]Marwa M. Ragheb, [4]Hyam R. Tantawi and [5]Ashraf M. Osman

Departments of Medical- Surgical , [4]Pediatric Nursing , Faculty of Nursing, [5]Tropical Medicine and Gastroenterology , Faculty of Medicine , [1, 4]Ain Shams - [2, 5] Assuit - [3] Benha Universities .
Soadmahmoud43@yahoo.com

Abstract: Hepatitis C represents a challenge to the health and well being of the patients and to health care system. In recent years remarkable progress has been made in hepatitis management and peg interferon/ribavirin combination therapy has become the slandered of care. **Aim:** This study aimed to evaluate the outcomes of two teaching methods on creating awareness for hepatitis C patients adherent to therapeutic regimen namely interferon and ribavirin therapy. **Methods:** A quasi-experimental design was utilized to conduct this study, the study was carried out at Assuite health population, and treatments unite of viral hepatitis and National Hepatology and Tropical Medicine Research Institute at Cairo. Sample: A purposive sample included 110 patients, 80 were adults and the rest of them 30 were adolescents from the previously mentioned settings. Tools:1) Patients' interviewing sheet to assess the knowledge about therapeutic regimen (pre / post tests), 2) An observation checklist to evaluate patients' practices regarding therapeutic regimen (pre / post tests), 3) Psychomotor assessment to determine patients' levels of anxiety and fatigue (pre / post test), 4) Patients condition assessment sheet (pre / post tests) and 5) Self-report weekly diary. **Results:** Showed that nearly two thirds of studied patients had poor knowledge and practices as regards their therapeutic regimen in pre / test compared to post/ tests. In addition, majority of them had sever anxiety and fatigue in pre - test compared to post tests. Moreover, significant reduction was indicated on treatment side effects in post tests. There are statistically significant differences between the effects of two teaching methods on the studied patients. **Conclusion:** The two teaching methods (educational program and instructional Booklet) were helpful in creating awareness for hepatitis C patients adherent to therapeutic regimen namely interferon and ribavirin therapy and reduction of treatment side – effects, added to educational program was more better and assistance for the studied patients compared to instructional Booklet. **Recommendations:** Further studies should be carried out on a large number of hepatitis C patients for evidence of the results and generalization.

1. Introduction

Hepatitis C virus is an infectious disease that was discovered in 1989, most people have no symptoms until the virus causes liver damage which can take 10 or more years to happen. It represents a major cause of liver cirrhosis and cancer and therapeutic options remain limited so, the number of patients presenting with long-term complications from this infection are increasing. Moreover, number of patients which in need for liver transplant is expected to further increase in the next 20 years *(Sarasin-Filipowicz, 2010 and Marcellin et al., 2011)*. The world health organization has declared HCV as a global health problem affecting 130–170 million people worldwide. In Egypt, it continues to be a public health problem and its incidence may be increased, added to its prevalence is the highest reported worldwide. The overall prevalence of Patient admission in the Hospitals for HCV treatment had been increased at a very high rate over the past years. Moreover, many publications suggest that over 15% of people in Egypt are infected, which equal ten times greater than any other country in the world *(Ahmed & Abdel Al, 2008 and Mohsen et al., 2011)*.

Remarkable progress has been made in the management of hepatitis C in recent years and Combination therapy (peginterferon/ribavirin) has become the standard of care. Treatment guidelines for chronic hepatitis C virus infection are based on a large number of published natural history studies and randomized controlled trials. There are fewer data available regarding the epidemiology, spontaneous course, and treatment of chronic hepatitis C in children and adolescents. Initially, most guidelines recommended adolescents to be managed and treated in a similar way as adults, Recently, several published open - label treatment trials have demonstrated significant efficacy and safety of HCV infection therapy in children and adolescents using either interferon-α 2b or peginterferon-α 2b in combination with ribavirin, which resulted in official approval of this treatment regimen by the US Food and Drug Administration (FDA) and the European Medicines Agency (EMA) As in adults, sustained viral response

(SVR) depends on genotype. Patients infected with genotype 2 and 3 respond significantly better than those with genotype 1 or 4 who only have response rates of 50%. Therefore, half of the treated patients remain chronic virus carriers with a risk of progressive liver disease, so there are compelling reasons to improve the present treatment options (*Chary et al., 2010 and Nicol, 2010*).

Interferon is a substance naturally produced by the body to defend itself from infections and regulating cell function including the hepatitis C virus, and tumors. The interferons used in treatment are synthetically manufactured and taken in much higher doses than would occur naturally in the body. Interferon was the first proven treatment for hepatitis C and effective for only a small number of people. It is given as an injection taken once a week for 24 – 48 weeks. Ribavirin which called nucleoside analogues, works by stopping the virus from spreading inside the body and comes as tablets taken three times a day. Younger patients who have mild liver disease and fewer virus particles in the liver usually respond better to interferon and ribavirin treatment (*Nadeem et al., 2007 and Noghabi et al., 2010*). Peglated interferon which is the addition of a large polyethylene glycol (PEG) molecule to interferon produces a molecule that lasts a lot longer in the body, meaning that only one injection per week is required. This change has resulted in considerably fewer peaks and troughs in drug levels in the blood, greater tolerability and improved effectiveness in fighting the hepatitis C virus (*Thomas and Zoulim, 2012*).

In several large trials of hepatitis C treatment, a wide array of side effects have been encountered which are usually minor but are problematic for a significant proportion of patients. Major adverse events can occur, but life-threatening adverse events have been rare in large surveys.Tolerance in adult's patients and adolescents is usually similar. Early flu-like side effects are predictable and are encountered in the majority of patients. These tend to occur within 6-8 hours after starting treatment and are worst with the first injections. These side effects include fever, malaise, tachycardia, chills, headache, arthralgias, myalgias and tachyphylaxis which generally develop after the first few injections. Later side effects that develop after some days include; fatigue, malaise, apathy and cognitive changes. Moreover, Between 10 and 15 percent of patients find the chronic side effects intolerable and discontinue treatment. Higher doses tend to give higher rates of adverse events. Most symptoms can be managed with medical intervention and dose reduction (*Khalid et al., 2009, Stefan et al., 2011 and Velmishi et al., 2012*).

Studies have shown that 40-80 percent of the medical information patients receive is forgotten immediately and nearly half of the information retained is incorrect. Patient education is necessary to develop the attitudes that influence positive health behaviors, understanding the rationale of taking medication correlates with the degree of compliance, severity of disease and the complexity of treatment regimens also affect compliance, Patient satisfaction and motivation give some indication that compliance will occur. Through education, patients can be made aware of their disease process and potential treatment options. But, educating patients is not as easy as one might think. Patients come from different ethnic and socioeconomic backgrounds; and they have different treatment priorities. It's important to have an open discussion with patients and to get to know their expectations and needs. The main purpose of treating and caring for patients with chronic viral hepatitis is to promote life satisfaction and feeling of well-being *(Walsh, 2008, Noghabi et al., 2010 and Potter &Perry, 2011).*

Aim of the study:

This study aimed to evaluate the outcome of two teaching methods on creating awareness in hepatitis C patients' adherent to therapeutic regimen. This aim was achieved through the following:

- Assessing knowledge and practices of hepatitis C patients regarding to therapeutic regimen (interferon and ribavirin).
- Developing and implementing educational program and instructional Booklet for hepatitis C patient's adherent to interferon and ribavirin therapy and evaluating its effect on their knowledge and practices.

Hypothesis:

It was hypothesized that there is a difference between the effect of two teaching methods on creating awareness for hepatitis C patients adherent to interferon and ribavirin therapy.

2. Subjects and methods:

Operational definitions:

- Awareness: means patients knowledge and practices
- Therapeutic regimen: means interferon and ribavirin therapy
- Adherent: means taking correct drugs and dose at right time with no missed doses for full initially intended duration.
- Outcome: means positive effect on patients knowledge and practices, reduction on the severity of side–effects and increase the adherence to treatment.

Research design:

A quasi-experimental design was utilized to conduct this study.

Setting:

The study was carried out at Assuite health population, directorate treatment unite of viral

hepatitis and *National Hepatology and Tropical* Medicine Research *Institute* at Cairo.

Subjects:

A purposive sample included 110 patients from both genders with hepatitis C and adherent to interferon and ribavirin therapy during the time of data collection.

The actual number of patients enrolled in the study was 180, of these patients (70) had no adherence to treatment, thus a total number of (110) = 61.1% patients were randomized either to group of educational program or instructional Booklet group. They were recruited as follows:

* Adolescents patients (n = 30) with 17 – 18 years age were taken from *National Hepatology and Tropical* Medicine Research *Institute* at Cairo.
* Adults patients (n = 80) up to 60 years ago were taken from health population, directorate treatment unite of viral hepatitis at Assuite (n = 40) and *National Hepatology and Tropical* Medicine Research *Institute* at Cairo (n = 40).

Both groups of the studied patients were allocated randomly to the following:

* Group I (n = 55), had the instructional Booklet
* Group II (n = 55), had the educational program

Inclusion criteria:

1. Patients with the first time treatment or have been received at least one time treatment
2. Patients adhere to the first three months of treatment
3. Patients with chronic hepatitis C and willing to participate in the study.

Exclusion criteria:

1. Unconscious patients
2. Patients aged above 65 years old
3. Patients with speech disorders
4. Patients with chronic illness (kidney, heart, hypertension, autoimmune, liver cirrhosis and cancer, diabetes, anemia and its types, etc).

Tools of data collection:

1 - Patients' interviewing sheet (pre / post tests), which was developed in a simple clear Arabic language by the researchers based on literature review and experts' opinions in the light of relevant references to determine patients' knowledge regarding interferon and ribavirin therapy. It included the following parts:

The first part: related to characteristics of the study subjects namely, age, gender, marital status, income, educational level and duration of diagnosis.

* **The second part:** related to patients' knowledge about chronic hepatitis C including: definition, causes, predisposing factors, types, manifestations, complications, management, prevention and sources of their knowledge, treatment(name, dose, route of administration), side effects and its management, safety measures, investigations before and after treatment, physical preparations and treatment instructions.

- Answers of the studied Patients' were scored as (1) for correct answer and (zero) for incorrect answer. The total score was categorized into either satisfactory level (from 60% and more) or unsatisfactory level (less than 60%).

2 - An observation checklist (pre / post tests), adapted from *Timby and Smith (2008), Walsh (2008) and Nicol (2010).* It was developed and filled by the researchers to evaluate patients practices regarding the following: infection control measures, self-injection technique, temperature and heart rate measurement, personal hygiene and exercises measures.

-A correct practice was scored as (1), while the incorrect (zero). It was scored into either inadequately done (less than 70%) or adequately done (70% and more).

3 - Psychometric assessment (pre / post tests), it was completed by interviewing of the studied patients to determine their anxiety level and fatigue level, through the following:

* **Fatigue Severity Scale**: It was adapted from **Krupp (1989)**, to measure fatigue level and consisted of nine statements with score ranged from 1-5, however 1 indicates strongly disagree (low fatigue level) and 5 indicates strongly agree (high fatigue level). The total score was ranged from 9 – 45, however mild fatigue (13.5 - 22.5), moderate fatigue (23-31.5) and severe fatigue (more than 31.5 - 45).

  Testing reliability of the scale items using alpha cronbach test = 0.95.

* **Hamilton Anxiety Rating Scale:** It was developed by **Hamilton (1959)** and modified by the researchers. This scale formed of thirteen variables: anxious mood, tension, insomnia,, cognitive changes, depression, somatic(sensory), cardiovascular, respiration, gastrointestinal, Genitourinary, autonomic symptoms, somatic (muscular) and the behavior at the interview. Responses were from (0-3) scores and the total score ranged from 0-39 according to patients' responses, the following classifications were adapted: no anxiety (zero), mild anxiety (0 - less than 23), moderate anxiety (23 - less than 29) and severe anxiety (29 - 39).

  Testing reliability of the scale items using alpha cronbach test = 0.832.

4- Patient condition assessment sheet (pre / post tests), it was completed by interviewing of the studied patients to determine presence of the side effects.

5 - **Self - report weekly diary,** which designed by the researchers and completed at the same time of treatment sessions to identify patients' complaints and the solutions that have been already done. This report

was helpful in the assessment of patient s' condition and prevent further complications.

Face and content validity:

It was ascertained by a group of experts from Medical– Surgical Nursing, Tropical Medicine and Gastroenterology. Their opinions were elicited regarding to the tools format layout, consistency, scoring system. Contents of the tools were tested regarding to the knowledge accuracy, relevance and competence.

Ethical considerations and human rights:

In the planning stage approval was obtained from the directors of the above mentioned settings. All patients were informed about the study and their rights according to medical research ethics that they were free to decide whether or not they would participate in the study. Then a written informed consent was obtained from each patient who agreed to participate in study.

Pilot study:

A pilot trial was carried out on 10% of the total study sample to test the clarity, feasibility and practicability of the tools, in addition to subjects and settings. Pilot subjects were later included in the study as there were no subsequent modifications in the study tools.

Procedures:

- The study was implemented during period of 6 months and the instructional Booklet and educational program were designed based on analysis of the actual educational patients' needs assessment in pre test by using the pre constructed tools.

- The content was written in simple Arabic language and consistent with the related literature. Moreover, met patients' needs and their level of understanding.

- The instructional Booklet was consisted of different elements; interferon- ribavirin therapy definition, indications, side effects management, diet, physical preparations, self- injection technique, temperature and heart rate measurement, exercises technique and infection control. It was distributed to each studied patient at first time after filling the pre assessment tools by the researchers with orientation about its contents and purposes.

- The educational program was presented in theoretical and practical sessions. Sample were divided into small groups including 4 – 5 patients and repeated sessions included all Patients, each group obtained 4 sessions (2 theory and 2 practice). In addition, each patient was guided by written instructions, and then orientation about objectives, outline and expected outcomes was done.

- The theoretical part was conducted through lectures and group discussions, using data show as a media. It was taken in 3 sessions (each session for 45 minutes) and cover the following items: interferon-ribavirin therapy indications, side effects management, physical, psychological preparations, correct diet and infection control measures.

- The practical part was conducted through demonstration, teach - Back and video. It was taken in 3 sessions (each session for one hour) and covers the following items (self- injection technique, temperature and heart rate measurement, exercises technique and infection control measures).

- Patient's condition assessment sheet was assessed through the weekly dairy of self report at the same time the patients present for treatment sessions. Results of the weekly diary were tabulated as follows:

   * On the first time of treatment.
   * After 4 weeks of treatment
   * After 8 weeks of treatment

- The researchers contact the patients one day weekly for any explanation. Patients were also informed to be in contact with the researchers by telephone for any guidance.

- Patients were assessed either individually or in groups that entail 4-5, according to their physical and mental readiness.

- Evaluating the effect of two teaching methods on the studied sample knowledge and practices, presence of side – effects, levels of fatigue and anxiety were implemented by using post – test (one month after pre – test) and follow- up test (two months later) by using the same tools.

3. Results:

Table (1): Presents characteristics of the studied sample, this table clarified that mean age of adults and adolescents patients was respectively 40.01 ± 7.2 and 17.5 ± 0.7. More than half of patients from both adults and adolescents were male (65% and 80%) with low income (55% and 59%) respectively. Also, the current table revealed that less than half of them (adults and adolescents) had low educational level 20% and 38% respectively, as regards the duration of patient's diagnosis this table clears that, more than half of patients (62.5% of adults and 55% of adolescents) were diagnosed more than one years.

Table (2): Shows knowledge about therapeutic regimen among studied patients. Results revealed insignificant differences between adults and adolescents patients in pre / post tests (t = 0. 08, 0.64 and 0.05 respectively). In addition, significant improvement in patients' knowledge was noticed in post and follow - up tests compared to pre - test.

Table (3): Shows studied patient's practices regarding therapeutic regimen. Results revealed statistically insignificant deference between adults and adolescent patients in pre/post tests (t = 0.52, 0.12 & 0.04 respectively). Moreover, significant improvement in patients' practices was found in post and follow- up tests compared to pre - test.

Table (4): Reveals patients' condition assessment in pre/post tests. Results revealed reduction on mean percent of side- effects among adults and adolescents after one month of treatment ﴾Mean = 48.0 & 45.5 respectively), followed by two months later (Mean =28.9 & 26.0 respectively). Furthermore, insignificant differences were found between adults and adolescents patients as regards side - effects on pre/post tests (t = 1.05, 0.96 & 0.82 respectively).

Figure (1): Presents studied patients' anxiety level in pre/post tests. As noticed majority of studied patients (85.0%) in both groups (G1&G2) had severe anxiety in pre-test, followed by nearly two thirds of G1 (69.5%&61.4) and more than half of G2 (58.6% &55.0﴿) in post-test and follow-up test. More significant reduction in anxiety level was indicated in G2 (educational program), compared to G1 (instructional Booklet).

Figure (2): Shows studied patients' fatigue level in pre /post tests. As observed, majority of studied patients (85.4%) in both groups (G1&G2) had severe fatigue in pre - test, followed by three fifths of them in G1 (60.0%﴿ and nearly half of G2(51.3%) in post- test, then later in follow-up test more than two fifths (44.5%) in G1 and about one third (30.0%) in G2. More significant reduction in fatigue level was indicated in G2 (educational program), compared to G1 (instructional Booklet).

Table (5): Clarifies differences between two teaching methods as regards patients' satisfactory knowledge and practices in pre/post tests. Results revealed more significant improvement in post and follow up tests among studied patients having educational program (G2) compared to patients having instructional Booklet (G1). In addition significant differences between patients practices and knowledge in G 1 & G 2 (t = 2.0 & 7.9 respectively).

Table 1: Characteristics of the studied patients (n=110)

Items	Adults (n=80)%	Adolescents (n=30)%
Age / years		
Mean ± SD	40.01 ±7.2	17.5 ± 0.7
Gender		
Male	65.0	80.0
Female	35.0	20.0
Marital status		
Married	58.8	-
Unmarried	35.0	-
Level of education		
High	39.0	-
Moderate	41.0	62.0
Low	20.0	38.0
Income		
Enough	45.0	41.0
Not enough	55.0	59.0
Diagnosis duration		
< 1 year	37.5	45.0
≥1 year	62.5	55.0

*High education: University - Moderate education: Secondary school and technical institutions - Low education: Illiterate, read and write, primary

Table 2: presentation of patients' knowledge about therapeutic regimen in pre/post tests

Items	Pre- test		Post- test		Follow- up	
	Adults %	Adolescents %	Adults %	Adolescents %	Adults %	Adolescents %
Good	11.3	10.0	30.0	35.0	40.0	43.0
Average	25.0	26.7	55.0	54.0	56.3	53.0
Poor	63.6	63.3	15.0	11.0	3.7	4.0
Mean % ± SD	18.1±9.7	18.3±11.8	42.5±17.7	44.5±13.4	48.1±11.5	48.0 ±7.1
T-value	t = 0.08 Insignificant		t = 0.64 Insignificant		t = 0.05 Insignificant	

Table 3: Presentation of patients' practices regarding therapeutic regimen in pre/post tests

Items	Pre – test		Post- test		Follow- up	
	Adults %	Adolescents %	Adults %	Adolescents %	Adults %	Adolescents %
Good	8.8	7.6	16.3	18.1	31.3	32
Average	22.5	21.4	46.2	45.4	50.0	49.1
Poor	68.7	71.0	37.5	36.5	18.7	18.9
Mean % ± SD	15.6±9.7	14.5±9.7	31.2±21.1	31.7±19.3	40.6±13.2	40.5±12.1
T-value	t = 0.52 Insignificant		t = 0.12 Insignificant		t=0.04 Insignificant	

Table 4: Patients' condition assessment (side effects reduction) in pre/post tests.

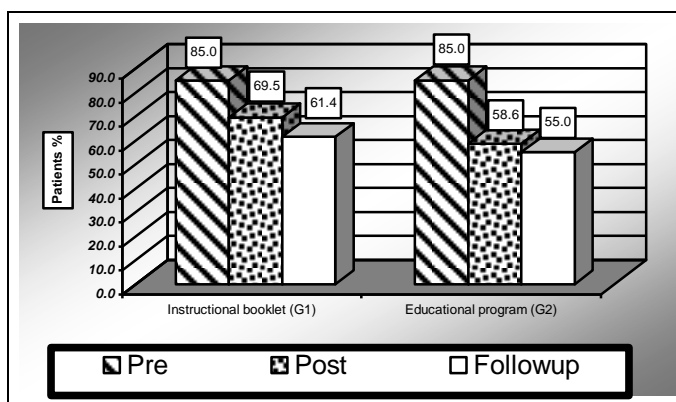| Items	On first time		After one month		After two months	
	Adults %	Adolescents %	Adults %	Adolescents %	Adults %	Adolescents %
Fever	75.0	77.0	46.3	43.8	17.5	15.4
Anorexia	65.0	61.0	31.3	29.8	15.0	14.0
Fatigue	88.0	85.4	60.0	57.4	30.1	26.2
Headache	81.3	79.2	46.3	44.0	28.8	26.0
Insomnia	85.0	82.1	42.5	40.1	21.3	17.1
Increased blood sugar	73.8	67.9	40.0	38.2	25.0	21.2
Worried	84.3	86.0	69.9	65.2	64.4	62.0
Injection reactions	95.0	91.0	45.0	43.0	20.0	18.0
Mean % ± SD	78.9±8.1	76.9±9.3	48.0±12.8	45.5±11.9	28.9±16.6	26.0±16.6
T-value	t =1.05 Insignificant		t=0.96 Insignificant		t=0. 82 Insignificant	

Fig (1): Distribution of studied patients according to their anxiety level in pre/post tests
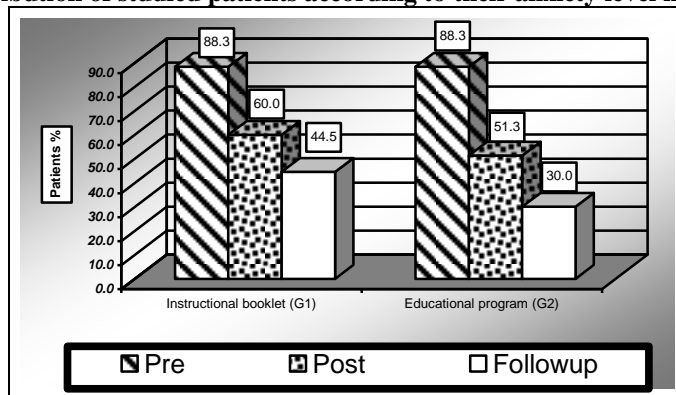

Fig (2): Distribution of studied patients according to their fatigue level in pre/post tests

Table 5: Differences between two teaching methods regarding patients' satisfactory knowledge and practices in pre/post tests.

Items	Group I (n=55) Instructional Booklet		Group II (n=55) Educational program	
	Practices %	Knowledge %	Practices %	Knowledge %
Pre - test	11.0	15.0	12.2	16.0
Post - test	51.2	60.4	76.1	85.3
Follow- up test	64.0	68.0	85.5	89.0
Mean % ± SD	31.1 ± 28.4	37.7±32.1	44.1±45.2	50.5±48.9
T1 value	t = 1.1 (insignificant)		t = 0.7 (insignificant)	
T2 = Differences between practices in G I & G II (t = 2.0, significant)				
T3 = Differences between knowledge in G I & G II (t = 7.9, significant)				

4. Discussion:

Chronic hepatitis C in teens and adults is usually silent, so it is known as silent killer *(Khalid et al., 2009).* Imperfect adherent to combination therapy is common in routine patients, so adherence is markedly over stimulated by physicians and is associated with some patients' baseline characteristics. Knowledge of these factors might help in identifying patients who are most in need of intervention, planning and accurate follow - up *(Marcellin et al., 2011).* Patient education can take place in any healthcare setting. But finding the best way to provide it and evaluating the results of teaching can pose a challenge. How well patients comprehend and recall the information they're taught helps predicts their adherence to management. The current study aimed to evaluate the effect of two teaching methods on creating awareness for hepatitis C patients adherent to therapeutic regimen. The present study clarified that, mean age of studied sample was 40.01 ± 7.2. These findings were highly supported with *Ahmed and Abdel Al (2008*) and *Mohsen et al. (2011)* who reported that, mean age of their studied patients with chronic hepatitis C was 51.6 ± 8.9 and 41.06 ± 9.3 respectively.

Concerning hepatitis C patients' knowledge and practices, the current study revealed that more than half of the studied sample had poor knowledge and practices in pre- test. *Sandokji et al. (2003) and Sarasin-Filipowicz (2010)* stated that providing information to patients about treatment regimens will increase their tolerance and compliance. In similar study of *Mohsen et al. (2011),* who stated that enrichment of patient with knowledge about chronic hepatitis C, its treatment and management related interferon side effects seemed to have positive effect on patient's condition, also, the study of *Noghbi et al. (2010)* clarified that, continuous education and follow - up in chronic hepatitis C patients under antiviral therapy could greatly increase their adherence to treatment and reduce side effects, ultimately resulting in a better goal. *Kogure et al. (2008)* cleared that patients education and effective treatment are cornerstones for enabling patients' to adhere to treatment. In addition, lack of awareness about route of application results in early termination of treatment.

On the same line regarding patients' practices learning them about proper method of self- injection of treatment is considered more important. Also, it is necessary to instruct them about dose adjustment during treatment period *(Nadeem et al., 2007.* These findings were highly supported with *Timby and Smith (2008*) who mentioned that, education has a vital role in improving knowledge and practices of patients and consequently improving their QOL.

In relation to patients' condition assessment, results revealed insignificant differences between adults and adolescents regarding side effects in

pre/post tests. The previous finding was supported by *Thomas and Zoulim (2012)* who reported that, side effects tolerance in adults patients and adolescent is usually similar. *Sandokji et al. (2003)* and *Stefan et al. (2011)* were in accordance with the previous findings. In the same context, significant reduction on side-effects was observed in post-tests. *Noghbi et al. (2010)* recognized that, early flu-like side effects are predictable and encountered in majority of patients. It tends to occur within 6-8 hours after starting treatment and are worst with first injections. These side-effects include fever, malaise, tachycardia, chills, headache, arthraigias and myaigias. *Chary et al. (2010)* recommended that, using simple measures against side effects like adequate hydration, light to moderate physical activities, treatment schedule, sedatives and antipyretics. He added that similar measures will consequently increase satisfaction and QOL and ultimately result in tolerance of treatment. According to Nadeem *et al. (2007) and Khalid et al. (2009),* treatment administration at night may reduce the frequency of side- effects. Moreover, array of side effects indicates the importance of selecting patients for therapy and optimizing response, careful assessment is required before treatment and monitoring is important during treatment. Velmishi *et al.* (2012) mentioned that, between 10 and 15 percent of patients find the chronic side effect intolerable and discontinue treatment.

As regards fatigue level among studied patients, results revealed significant reduction on fatigue in post-tests. This finding was in consists *with Nicol (2010)* and *Velmishi et al. (2012)* who mentioned that, fatigue is a frequent side effects of hepatitis C treatment and may result in early termination of antiviral therapy. *Marcellin et al. (2011)* cleared that, later side effects develop after some days include: fatigue, malaise, apathy and cognitive changes.

Considering anxiety level among studied patients, findings indicated slight reduction in post-tests. This result could be attributed to the fact that, hepatitis C disease had a bad prognosis, added to treatment associated side effects. *Mohsen et al. (2011)* clarified that; anxiety can be defined as an accompanying emotion of stressful encounters. As a disease stated is considered stressors, treatment adds another stressor to patients. Interferon therapy can induce a variety of neuropsychiatry adverse events including depression, anxiety and panic attack. Moreover, severe anxiety is a very common side effects in 30% or more of patients and they should be aware that medications predispose them to anxiety which require instructions to control it effectively.

In relation to the differences between two teaching methods in pre/post tests, results revealed more significant improvement in post and follow up tests among studied patients having educational

program compared to instructional Booklet. The previous findings could be attributed to the fact that, the program was given in this study using lectures, demonstration, video and teach back technique, compared to instructional Booklet. According to *Xu (2012),* teach back is an interactive teaching method that uses plain language, focuses on key points, and asks the patient to verbally recall information just discussed. It also known as the "show-me" method or "closing the loop". Lecture has many advantages including the ability to provide information to a large number, the ability to cover a large amount of material quickly and provide cost effectiveness. The lecture is a way to introduce new material, continue discussion of a topic, and sum up course content, as well as present large blocks of complex and confusing information. According to Friedman *et al. (2011),* Video education, is very similar to computer-based training. But, it is more difficult to evaluate learning. A written post-test could be used after the video is reviewed. But, it is important with both of these media to consider the patients' educational level, language, and hearing/seeing abilities. In addition, *Farrell et al. (2009)* stated that, Demonstration is an effective patient -teaching technique. Patients can be showed how to complete a task or how a process works in a one- on - one setting, and then they can do the task more effectively at home. It does ensure that patients fully understand the teaching and it allows them to get feedback and ask questions in a safe arena. *Wilson et al. (2008)* recognized that Written material which seems so easy and routine can be effective. For instance, material with pictures can offer instructions or explanations. It can offer instructions in a step by step fashion. Once again, it is important to evaluate the patients' literacy level, language and sight before handing out routine teaching materials.

Conclusion:

In the light of the current study it can be concluded that, two teaching methods were helpful in creating awareness of hepatitis C patients adherent to therapeutic regimen (interferon and ribavirin therapy), added to patients with educational program had more improvement compared to instructional Booklet in this study. Moreover, significant improvement was observed on reducing fatigue level, anxiety level and treatment side effects among the studied patients.

Recommendations:

- Awareness programs about interferon-ribavirin therapy should be held periodically for hepatitis C patients.
- Mass media can participate to increase hepatitis C patients' information about the disease process.
- Self care behavioral strategies should be developed to relieve side effects of treatment.
- Teaching family members to participate in patients' care.
- Further studies should be carried out on a large number of hepatitis C patients for evidence of results and generalization.

Corresponding author
Soad M. Hegazy
Departments of Medical Surgical Nursing Department, Faculty of Nursing Ain Shams University
Soadmahmoud43@yahoo.com

References:

1. Ahmed, S. and Abdel Al, M. (2008): Predictors of health related quality of life for patients with chronic hepatitis C virus, Scientific Journal of Al-Azhar Medical, Faculty of Girls, 29(2): 1639 – 51.
2. Chary, A., Winters, M., Kottili, S., Muephy,A. and Polis, M. (2010): Impact of Interferon- Ribavirin Treatment on Hepatitis C Virus protease quasi-species Diversity in HIV-and HCV-Co- infection patients. J Infect Dis, 202(6):889 – 93.
3. Farrell M, Kuruvilla P, Eskra K, *et al.*(2009): A method to quantify and compare clinicians' assessments of patient understanding during counseling of standardized patients. Patient Educ Couns, 77(1):128-35.
4. Friedman, A., Cosby, R., Royko, S., Hatton – Bauer, J. and Turnbull, G. (2011): Effective teaching strategies for patient education: a systemic review and practice guideline recommendations. J Cancer Educa, 26 (1): 12 – 21.
5. Hamilton, M. (1959): the Hamilton Anxiety Rating Scale, in; El-Shamaa, E., Hassan, M. Hegazy, S. and Eman, H. (2008); Hyperbaric Oxygen Therapy: Effect of Intervention guidelines on Knowledge and practices of patients with Chronic Wound; New Egg J., Med., 38(6): 9.
6. Khalid, S., Khan, A., Alam, A. and Lak, N.(2009): Interferon –Ribavirin Treatment in Chronic Hepatitis C-the Less Talked about aspect. J Ayub Med Coll Abbottabed, 21(2): 99-102.
7. Kogure, T., Ueno, Y., Fukushima, K., Nagasaki, F. and Kondo, Y. (2008): Pegylated interferon plus ribavirin for genotype IB chronic Hepatitis C in Japan. World Gastrointestinal, 14(47): 7225-30.

8. Krupp, I. (1998): The fatigue severity Scale: Application to patient with Sclerosis and Systemic Lupus Erythematosus, Arch Neural, 46(1):11.
9. Marcellin, P., Chousterman,M., Fontanges, T., Ouzan, D. and Rotily, M. (2011): Adherence to treatment and Quality of Life during Hepatitis C Therapy, New HCV Drug, 28:201- 15.
10. Mohsen, M., fareed, M., El-Sheikh, A. and Abbas, S. (2011): Effect of nursing management protocol on selected side effects of interferon and ribavirin among Hepatitis C patients, Journal of Amirican Science, 7(6):54-63.
11. Nadeem, A., Aslam, M., Hussain, T., Hussain, M. and Alikhan, S. (2007): Efficacy of Combined Interferon Alpha and Ribavirin Therapy in patients of Chronic Hepatitis C Pak J physical, 3(2): 1-4.
12. Nicol, M. (2010): Essential Nursing Skills. St-Louis: Mosby Company.
13. Noghabi, A., Zandi, M., Mehran, A., Alavian, S. and Dehkardi, A. (2010): The effect of education on quality of life in patients under interferon therapy; hepatitis Monthely, Summer, 10(3):218 - 22.
14. Potter, P. and Perry, A. (2011): Fundamental of Nursing; Concepts, process and Practices. 2nd ed., USA: Mosby Co.
15. Sandokji, A., Sanai, F., Al-Ajlan, A. and Al-Karawi, M. (2003): Interferon-Ribavirin Therapy for Chronic Hepatitis C; efficacy in Saudi Patients, The Saudi Journal of Gastroenterology, 9:129 – 34.
16. Sarasin-Filipowicz, M. (2010): Interferon therapy of hepatitis C; Molecular insights in to success and failure, Swiss Med Wekly, 140(1-2):3-11.
17. Smeltzer, S. and bare, B. (2006): Text Book of Medical- Surgical Nursing. 9th ed. USA: Lippincott Co.
18. Stefan, W., Deirdre, K., Elinne, S. and Piotr. S. (2011): Guidance for Clinical Trial for Children and Adolescent with Chronic hepatitis C. Journal of Pediatric Gastroenterology and Nutrition, 52: 233 – 37.
19. Thomas, D. and Zoulim, f. (2012): New Challenges in Viral Hepatitis. An international journal of Gastroenterology and Hepatology,, 61:11-15.
20. Timby, B. and Smith, N. (2008): Introductory medical surgical nursing. 9th ed. Philadelphia: Lippincott Williams and Wilkins.
21. Velmishi, V., Dervishi, E., Cullufi, p., Bali, d. and Durro, V. (2012): Treatment and Follow-up of Children with Chronic Hepatitis C in Albania. Virology Journal, 9:17.
22. Walsh, M. (2008): Watson's Clinical Nursing and related Sciences. 6th ed., St. Louis: Baillieretindal.
23. Wilson F, Baker L, Nordstrom C, *et al.* (2008): Using the teach-back and Orem's Self-care Deficit Nursing theory to increase childhood immunization communication among low-income mothers. Issues Compr Pediatr Nurs, 31(1):7-22.
24. Xu, P. (2012): Using teach back for patient education and self – management. American Nurse Today, 7(3):2.

9/22/2012