ISSN No:-2456-2165

Patient Perception Toward the use of Fecal Microbial Therapy in the Treatment of Antibiotic-Associated Diarrhea in Selected Hospital of Delhi NCR

Dr. Dipak Sethi, Professor Sharda University, Greater Noida, Dr. Sukhbir Kaur
Associate Professor Sri Guru Ram Das University of Health Sciences, Amritsar

Abstract:- Objectives: Study aims to assess the perception of patient of antibiotic-associated diarrhea towards Fecal Microbial Therapy.
Methods: This study used a cross-sectional design with purposive sampling technique to select the subjects. Thirty-three participants were selected for the study. Everyone who filled out the consent did so of their own free will and without expectation of reward or remuneration. Self-administered questionnaire was employed to collect the data.
Results: 33 participants who have been identified with antibiotic-associated diarrhoea were given a total of 15 standardized questionnaires regarding Fecal Microbial Therapy. The vast majority of patients held favorable opinions regarding FMT. Only a small percentage of patients had the impression that FMT diminished their sense of respect. In addition, the patient had a revolting feeling towards the FMT. Second, the vast majority of patients were of the opinion that FMT has the potential to be an advantageous and successful treatment option. The majority of patients believed that being able to assist others was more essential than being inconvenienced by FMT, and all participants supported maintaining patient confidentiality both during and after the procedure. Patients were not consistent in their agreement that FMT should be used as a treatment when the donor cannot be identified.
Conclusion: Although FMT has been well-received as a treatment for antibiotic-associated diarrhea, there is room for improvement in patients' perception of the therapy's benefits and risks. When patient preference and the knowledge disparity between are brought into alignment, the result will be improved education and the facilitation of the establishment of decision-making principles.

Keywords:- *Perception, Fecal Microbial Therapy, Antibiotic-Associated Diarrhea.*

I. INTRODUCTION

The incidence of antibiotic-associated diarrhea has skyrocketed over the last 15 years, and despite widespread use of antibiotics, recurrence rates of 30–65% after repeated dosing remain a significant problem. Microbes, including bacteria, fungus, and viruses, make up the human gut. In both the healthy and pathological stages of people, there is a dynamic ecosystem influenced by a number of elements. Increased host vulnerability to several illnesses has been linked to disruption of the gut bacteria. It has been shown that within hours following an insult, severely ill individuals lose 90% of the commensal organisms in their gut due to splanchnic ischemia, antibiotic exposure, and/or the underlying illness.

Rapid proliferation of potentially pathogenic and pro-inflammatory bacteria then occurs, transforming the gut into the systemic inflammation and multi-organ failure by affecting metabolic, immunological, and even neuropsychological functioning. In fact, restoring healthy bacteria by faecal microbial transplantation (FMT) in the severely sick is an appealing and realistic idea in intensive care. The natural intestinal bacteria are disrupted in Clostridium difficile infection.

(CDI), an inflammatory diarrheal illness that is usually linked to antibiotic usage[1]. Metronidazole or vancomycin taken orally for 10–14 days is the gold standard for treating primary CDI[2]. The most promising of the alternative treatments for antibiotic-associated diarrhea is faecal microbial transplantation (FMT), also known as faecal biotherapy, faecal bio transplant, faecal microbial therapy, stool transplantation, or faecal flora restoration. By administering a liquid suspension of healthy donor stool by nasogastric tube [NGT], enema, or colonoscopy, FMT restores a sick person's natural intestinal bacteria. FMT was initially reported in 1958 (for a patient with non-CDI pseudomembranous colitis)[3]. As more people get infected with antibiotic-associated diarrhea faecal microbial therapy is being employed as a treatment due to the widespread notion that importing the healthy colonic microbes of a donor is an easy approach to restore healthy colonic flora (microorganisms that live in the gut)[4].

ISSN No:-2456-2165

II. MATERIALS AND METHODS

➢ *Study Design and Participants*

This study used a cross-sectional design and took place between January 20 and March 2020. Patients with antibiotic-associated diarrhea were recruited from four academic medical centers and hospitals. All patients over the age of 18 who have been diagnosed with antibiotic-associated diarrhea and who can read and write and provide informed consent to participate in the study were eligible. Thirty-three participants were selected for the study. Everyone who filled out the survey did so of their own free will and without expectation of reward or remuneration. The significance and goals of the study were communicated to the participants. The research design was approved by the ethics committee of AFMC and hospital.

➢ *Sampling*

Due to vulnerability of antibiotic-associated diarrheal patients 4 different hospitals were selected in New Delhi. OPD data were used to check the availability of antibiotic-associated diarrheal patients. Total 33 subjects were available who are diagnosed with antibiotic-associated diarrhea and selected by using purposive sampling.

➢ *Data collection*

After contacting the chief nursing officer and medical officer of the 4 hospitals to introduce the purpose of the study and policy on data anonymity, a cross-sectional design involving a self-administered questionnaire was employed to collect the data. At the first phase the participants were explained the purpose of Fecal Microbial therapy (FMT) later the questions related to perception towards FMT were asked. It took 20-30 Min to complete the one sample.

➢ *Statistical Analysis*

IBM SPSS Version 29.0 (IBM Inc., Armonk, NY, USA) and the PROCESS Procedure Version 3.5 inside SPSS were used to do statistical analyses. The mean and standard deviation were used to describe continuous variables, whereas frequency and percentage were used to describe categorical ones.

III. RESULTS

➢ *Descriptive Characteristics*

The descriptive characteristics of the demographic variables are presented in Table 1. The 33 patients diagnosed with antibiotic-associated diarrhea who participated in this study had a mean age of 42.4 years. Most were men (72.7%), had higher education (57.6%), and had no information about FMT (93.9%).

Table 1 Participant Demographic Variables (n=33)

Variable	n	%
Gender		
Male	24	72.7
Female	9	27.3
Age		
30-35 years	3	9.1
36-40 years	14	42.4
41-45 years	8	24.2
Education		
SSC	4	12.1
HSC	19	57.6
Graduate	10	30.3
Information about FMT		
Yes	2	6.1
No	31	93.9

Table 2 represent the perception of participants towards FMT. Majority of participants have not heard about FMT as a treatment for antibiotic-associated diarrhea (93.9%), 51.5% participants felt the FMT treatment as a disgusting way to treat antibiotic-associated diarrhea on the other side only 21.2% participants had view that FMT is an effective treatment for antibiotic-associated diarrhea. 54.5% participants prefer their relatives as a donor if they need to adopt FMT, followed by 87.9% participants who do not feel FMT is used as a treatment if the donor is anonymous and only healthy. 75.8% participants favour towards the doctor's orders to implement FMT. 66.7% participants consider FMT is a safe treatment if all other treatment options failed. Almost all participants i.e. 100% had a concern of Cleanliness and hygiene during FMT treatment. Regarding insurance during the FMT treatment 100% participants wanted it to be covered by health insurance companies. For the safe stool sample, 100% participants were in favour of stool banks to have safe and healthy samples. 54.5% participants felt the dignity of patients who receives FMT has not affected as it is a lifesaving process. 60.6% participants felt helping others is more important than feeling inconveniences towards FMT. 90.9% participants were in favour of patient privacy during and after FMT. Concern towards confidentiality during communication with colleagues were supported by 100% participants.

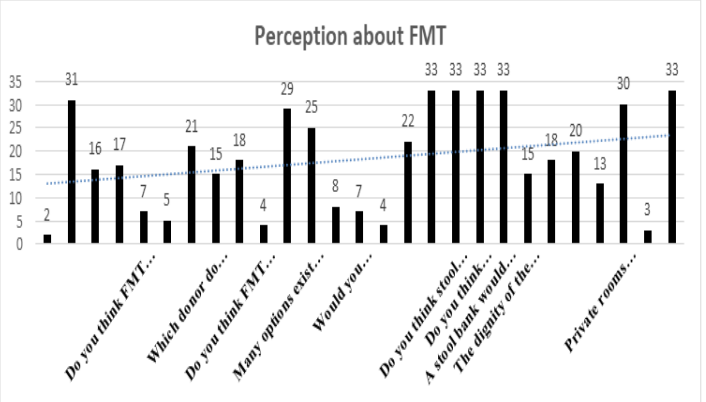
Table 2 Participants perception towards FMT

Variable	n	%
Have you heard about FMT as a treatment option		
Yes	2	6.1
No	31	93.9
Do you feel disgusting for FMT		
Yes	16	48.5
No	17	51.5
Do you think FMT is an effective treatment?		
Yes	7	21.2
No	5	15.2
Do not know	21	63.6
Which donor do you favour		
Spouse	15	45.5
Relative	18	54.5

ISSN No:-2456-2165

Anonymous donor	00	00
Do you think FMT is used as a treatment if the donor is anonymous and only healthy?		
Yes	4	12.1
No	29	87.9
For implementing FMT. Which one would you choose if they were all equally effective.		
Rectal enema	8	24.2
Any method as per doctors' orders	25	75.8
Colonoscopy	00	00
Would you consider FMT as a treatment option? As		
It is a natural therapy	7	21.2
It is safe way of treatment	4	12.1
If all other options failed	22	66.7
Do you have any concern about FMT before implementation		
Cleanliness and hygiene	33	100.0
Unsafe application	00	00
To meet personally to donor	00	00
No concern	00	00
Do you think insurance companies will start paying for this treatment soon?		
Yes	33	100.0
No	00	00
Do you think stool bank should be established to get accurate and clean samples for FMT?		
Yes	33	100.0
No	00	00
A stool bank would make the procedure more convenient in terms of time, money, and logistics		
Yes	33	100.0
No	00	00
The dignity of the patient is negatively impacted by FMT		
Yes	15	45.5
No	18	54.5
Being a stool donor may cause some inconvenience, but helping others is more important.		
Yes	20	60.6
No	13	39.4
Private rooms should be available for treatment for FMT patients		
Yes	30	90.9
No	3	9.1
Protecting patient confidentiality during communication with colleagues and other patients is essential.		
Yes	33	100.0
No	00	00

Fig 1 Participants perception towards FMT



IV. DISCUSSION

The study showed the positive attitude towards FMT, similar results were shown by Zhong et al., 2020, showed that Patients' experience of FMT through TET lead them to maintain a positive attitude towards FMT[5]. Present study showed majority of subjects had a concern towards cleanliness and hygiene during FMT, similar results were supported by Kahn et al. stated concerns about adequate infection screening (41%), cleanliness (24%), and the risk of UC worsening (18%) topped the list[6]. Present results showed the majority of participants had a favor of doctor's orders for implementation of FMT, similar results showed by Kahn et al. Overall current study shows the positive perception of patient towards fecal microbial therapy, similar results showed[7] by Xu, L et al. Present study showed the positive perception of patients towards stool bank for stool sample[8], similar results showed by Zhang et al.

V. CONCLUSION

Despite reporting satisfactory to excellent disease management with their existing treatment, most of these patients are interested in or willing to pursue FMT. Fecal microbial therapy is not much known by public in Indian treatment culture, majority of people and patient do not have much knowledge about FMT. Present study showed the positive perception of patient towards Fecal Microbial therapy, though patient had more concern about the cleanliness and hygiene towards FMT.

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