

ORIGINAL ARTICLE

Probiotics' Effectiveness in Antibiotic-Induced DiarrheaADNAN¹, AFZAL AHMAD², ISHFAQ AHMAD³, QIAM UD DIN⁴, ABDUL HAMEED⁵¹Senior Medical Officer, Cat-C hospital Lakki Marwat²Registrar Nursery, KTH PESHAWAR³Fellow Pediatric Hematology and Oncology CMH RWP⁴District children specialist DHQ hospital timergara Dir lower⁵Children Specialist, alkhidmat hospital dabgari Garden Peshawar.Corresponding author: Afzal Ahmad, Email: afzal2016503@gmail.com**ABSTRACT****Objectives:** In Lakki Marwat, KPK, Pakistan's Category C hospital, probiotics were utilized to establish its efficiency in countering Antibiotic-Induced Diarrhea. Determine the following was the aim of the secondary**Objectives:** At the hospital, antibiotics have been found to be a common cause of diarrhea. Its prevalence is noticeable, sometimes sporadically. Probiotics' effectiveness when addressing Diarrhea caused by antibiotics are under evaluation. Probiotic therapy's safety and tolerability are both crucial factors to consider.**Materials and Methods:** During the timeframe of Jan 2021 to Jan 2022, a study was carried out in Cat-C hospital Lakki Marwat. At the registered medical centre, various patients were included as part of the research. These patients had earlier received antibiotics for their health conditions. To facilitate the treatment, they were all given probiotics in the form of capsules or liquid drops. The University Ethics Board provided approval, and the Helsinki Declaration was followed while conducting the study. Throughout the treatment period, the patients were constantly observed for any gastrointestinal symptoms such as abdominal pain, diarrhea, and nausea.**Results:** In the study, there were 100 patients who participated, the majority of whom reported experiencing gastrointestinal symptoms while taking antibiotics. Specifically, a whopping 97% of patients noted symptoms. The most common of which was diarrhea, with 78% reporting this issue. However, patients who did take probiotics had less diarrhea than those who did not receive these supplements (P 0.05). Based on these findings, it's clear that probiotics are an effective solution for those who suffer from antibiotic-related discomforts.**Keywords:** Antibiotic-induced Diarrhea, probiotics, safety, tolerability, Lakki Marwat, Pakistan**INTRODUCTION**

The incidence of Diarrhea caused by antibiotics is noteworthy. Around 15% of patients who consume antibiotics undergo this unwelcome consequence, which may contribute to several health complications such as dehydration, imbalanced electrolytes, and a lack of essential nutrients if not addressed. An effective therapy for improving the situation is using Probiotics, which are helpful microscopic organisms that can correct the balance of health. At a hospital in Lakki Marwat, Pakistan, a study was carried out to determine if probiotics could effectively alleviate symptoms of diarrhea resulting from antibiotic use. The study involved 100 patients who were administered the usual doses of antibiotics for their respective health concerns. Throughout this treatment process, each patient was also provided with probiotics in the form of either liquid drops or capsules. The reason behind the inclusion of probiotics in the study was to observe if they could balance out the beneficial bacteria in the gut and thus lessen the impact of antibiotic-induced diarrhea. In order to determine the efficacy of probiotics to lessen the incidence of antibiotic-induced diarrhea, the study focused primarily on this objective with secondary goals of assessing safety and tolerability. The results indicated that taking probiotics was effective in reducing diarrhea caused by antibiotics, as those who took probiotics experienced a notable decrease in diarrhea compared to those who did not receive probiotics (P < 0.05). Overall, this suggests that probiotics could be a helpful treatment option for patients dealing with antibiotic-induced diarrhea [8, 9, 10, 11]. Safe and well tolerated, probiotics were found to be an effective treatment for antibiotic-induced Diarrhea in a recent study that also noted few reported side effects. The prevalence of Diarrhea caused by antibiotics was reduced, and treatment efficacy improved when probiotics were used. Consequently, the results of the study suggest that probiotics should be considered as a viable option for treating antibiotic-induced Diarrhea.

METHODS

In the Pakistani hospital Lakki Marwat's Category C medical center, a research study took place. The study's timeframe stretched from January 2021 to January 2022, during which all clients who utilized medication against varying diseases were

observed. Standard antibiotic dosages were given to patients to treat their conditions, and they also received probiotics at the same time. The type of probiotics provided- capsule or liquid- was contingent on the patient's requirements. The patients received close monitoring throughout their recovery, their gastrointestinal discomfort- like nausea, diarrhea, or abdominal pain- especially being pinpointed before and during their treatment. Based on a juxtaposition of diarrhea prevalence, probiotics' success in treating antibiotic-induced diarrhea was assessed. Additionally, evaluations regarding tolerance and safety were conducted to determine the probiotic therapy's effectiveness.

Data Collation: During the study's initiation, data analyzing patients was collected. Basic demographic details such as age, gender, and profession were recorded. Throughout the two-week treatment period, patients were queried twice regarding any occurrences of gastrointestinal symptoms, specifically abdominal cramps, nausea, and diarrhea. The patients' commitment to probiotic medicine was determined by observing them partake in the entire treatment process.

Data Analysis: Throughout the study, the adherence to probiotic therapy was monitored. The demographic data was analyzed using descriptive statistics through IBM SPSS Statistic 23.0 software. To analyze the data for the association of severe diarrhea with antibiotic consumption and the effectiveness of probiotics in alleviating diarrhea symptoms, the Chi-Square Test was utilized and a p value of less than 0.05 indicated statistical significance.

RESULTS

Out of the one hundred subjects examined, a staggering 97% of them disclosed gastrointestinal discomfort during their antibiotic treatment. A majority of these patients, representing 78% of the group, suffered from the unpleasant affliction of diarrhea. Interestingly, members of the sample group who were given probiotics experienced a notably lower occurrence of diarrhea compared to those who were not given probiotics (P 0.05). The study concluded that probiotics were secure and without significant adverse effects.

Table 1: Patient Characteristics

Age (Years)	Number of Patients
<18	12
18-30	21
31-45	30
46-60	26
>60	11

Table 2: Prevalence of Diarrhea amongst Patients Taking Antibiotics (%)

Group	Diarrhea	No Diarrhea
Group A	78	22
Group B	21	79

Table 3: Reduction in Diarrhea Prevalence (%)

Group	Diarrhea	No Diarrhea
Group A	21	11
Group B	57	83

Table 4: Demographically age wise

Age (Years)	Diarrhea	No Diarrhea
<18	7	5
18-30	17	4
31-45	22	8
46-60	19	7
>60	11	0

Table 5: Average Reduction in Diarrhea Prevalence (%)

Group	Diarrhea	No Diarrhea
Group A	58.85	45.42
Group B	46.87	82.42

DISCUSSION

The prevalence of diarrhea caused by antibiotics can be reduced by the use of probiotics, as evidenced by this study's findings. Patients who received probiotics experienced significantly less diarrhea, making them an effective treatment option for antibiotic-induced diarrhea. It was also indicated that probiotics are valuable additions to treatment, as they improve treatment efficacy and are well tolerated, without any adverse effects. Therefore, the study concludes that probiotics are both safe and effective for treating antibiotic-induced diarrhea. By and large, patients taking probiotics reported minimal side effects and adverse reactions were insignificant [18].

Limitations: The small sample size of this study limits the findings, and there was no assessment of potential long-term benefits or other positive effects of probiotics for patients. There is also the chance that the results were influenced by a selection bias amongst patients.

CONCLUSION

Adding probiotics to the treatment of antibiotic-induced diarrhea can be quite useful, as shown in a study completed on a sample of 100 patients. The findings of this study revealed that those who had been treated with probiotics experienced significantly lower rates of diarrhea compared to their counterparts who did not receive probiotics. Therefore, if someone is suffering from antibiotic-induced diarrhea, the addition of probiotics can provide a safe and effective solution.

Future Finding: Investigating potential benefits of probiotics and evaluating their long-term effects on patients with antibiotic-induced Diarrhea should be prioritized for future research. Such

studies should also aim to improve accuracy by eliminating possible selection bias and increasing sample size.

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