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BRIDGING THE KNOWLEDGE GAP: ROLE OF PHARMACIST EDUCATION IN IMPROVING KAP AND QUALITY OF LIFE IN ALLERGIC RHINITIS

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Abstract:
Background: *Allergic rhinitis is a chronic inflammatory condition of the nasal mucosa caused by IgE-mediated hypersensitivity To allergens such as pollen dust mites and molds. It presents with symptoms like sneezing, nasal congestion, rhinorrhea and itching. The condition significantly affects quality of life sleep and daily activities. Its prevalence is increasing due to urbanization pollution and lifestyle changes making effective patient education and management essential.*
Methodology: *A Prospective observational study was conducted over 6 months among 650 allergic rhinitis patients. Subjects were randomized into test and control groups using block randomization. Data were collected using KAP & RQLQ questionnaire at baseline and follow ups. The test group received education at each visit while control group received only at final follow up.*
Results: *The test group showed significant improvement in KAP scores compared to the control group (p<005). RQLQ Scores decreased significantly in test group indicating improved quality of life. No major improvement was observed in the control group.*
Conclusion: *Pharmacist intervention on knowledge adherence and quality of life in allergy clinics patients had a significant impact.*
Keywords: *Allergic rhinitis, IgE, KAP, RQLQ, Pharmacist counselling*

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INTRODUCTION:

Allergy rhinitis is a common chronic respiratory condition characterised by inflammation of the nasal mucosa due to an immunoglobulin E (IgE) mediated response to airborne allergens. It is one of the most prevalent allergic disorders worldwide, affecting individuals of all age groups and significantly impacting quality of life. The condition is triggered by exposure to environmental allergens such as, pollen dust mites mole spores and animal dander. Although traditionally considered a localised nasal disorder recent evidence suggested that allergic rhinitis is a part of broader systemic airway disease involving the entire respiratory tract. The pathophysiology of allergic rhinitis involves a complex immune mechanism. During the initial sensitization phase, inhaled allergens are captured by antigen presenting cells in the nasal mucosa, leading to activation of T-helper cells (Th2) lymphocytes. These cells stimulate B- lymphocytes to produce allergen specific IgE antibodies, which binds to mast cells. Upon re-exposure to the same allergen, cross linking of Ig-E antibodies' on mast cells results in the. degranulation and release of inflammatory mediators such as histamine leukotrienes, prostaglandins, and cytokines. These mediators are responsible for the characteristic symptoms of allergic rhinitis including sneezing, nasal congestion, itching and rhinorrhoea. Despite not being life threatening, allergic rhinitis has a significant clinical relevance as it can impair daily functioning, reduces productivity, and is strongly associated with poor asthma control and other respiratory complications.

METHODS:

A prospective, observational study was conducted over a period of 6 months among 650 patients diagnosed with allergic rhinitis. Participants were recruited based on predefined inclusion and exclusion criteria, ensuring they were clinically diagnosed and willing to participate throughout the study duration. After enrollment, subjects were randomized into two groups-test and control-using a block randomisation method to ensure equal distribution and minimise bias. Baseline data were collected using validated tools, including the knowledge, attitude and practice (KAP) questionnaire and rhinoconjunctivitis quality of life questionnaire (RQLQ). These tools were administered at the start of the study and during subsequent follow- up visits. The test group received structured pharmacist-led counseling at every visit, which included education on disease condition, medication usage, adherence strategies and lifestyle modification such as allergen avoidance. The control group however received standard care and was provided counselling only at the final follow up visit. Follow- up visits was conducted at regular intervals to monitor progress, reassess KAP and RQLQ scores, and evaluate the impact of the intervention. Data collected were statistically analysed to compare outcomes between the two groups.

RESULTS:

A total of 650 patients were enrolled in the study with participants equally distributed between the test and control group through block randomisation at baseline there were no statistically significant differences between the two groups in terms of demographic characteristics, B disease severity, or initial KAP and RQLQ scores, indicating homogeneity and comparability. Over the six months study period, significant improvement were observed in the test group compare to the control group. The knowledge, attitude, and practice (KAP) scores demonstrated a marked increase in the test group. Patients who received pharmacist- led counselling show better understanding of allergic rhinitis, including its causes, symptoms, triggers, and treatment strategies. They also exhibited improved attitudes towards disease management and were more proactive in adopting preventive measures. In contrast, the control group showed minimal improvement in KAP scores throughout the study period. Since they did not receive continuous counselling, their awareness and understanding remained relatively and changed until the final follow- up session, where a slight improvement was observed after receiving counselling. The RQLQ scores, which assess the quality of life in patients with allergic rhinitis, showed a significant reduction in the test group. Lower scores indicated improvement in symptoms such as nasal congestion, sneezing, itching and sleep disturbance. Patients in the test group reported better daily functioning, reduced discomfort, and enhanced emotional well-being. These improvements were statistically significant ($p<0.05$), high lighting the effectiveness of pharmacist intervention. On the other hand, the control group did not exhibit significant changes in RQLQ scores during most of the study period. Their symptoms persisted with little variation, and quality of life remained largely unaffected. Only at the final follow up after receiving counselling a modest improvement was observed but it is was not comparable to the outcomes seen in the test group. Medication adherence was notably higher in the test group. Regular counselling sessions reinforced the importance of adhering to prescribed treatment, correct uses of medications such as antistamines and nasal sprays, and awareness of potential side effects. Patients in the group were educated on avoiding allergens such as dust, pollen, and smoke maintaining indoor hygienic, I am using protective measures. These behavioural changes contributed

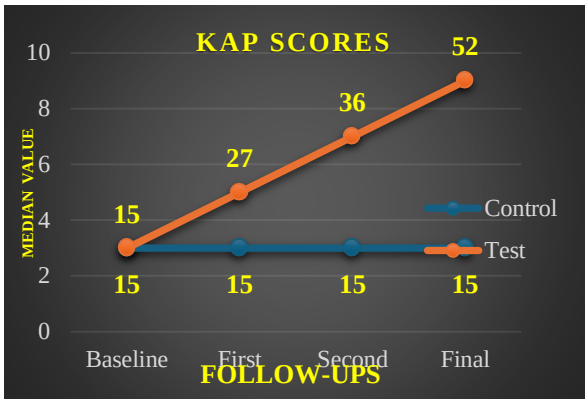
significantly two symptom control and over all disease management. No major adverse effects or complications were reported in either group .additionally, the study was conducted or a limited duration, and long terms outcomes were not accessed. Despite, these limitations the study provides strong evidence supporting the integration of pharmacist- led counselling into routine clinical practice for allergic rhinitis management

Demographic details:-

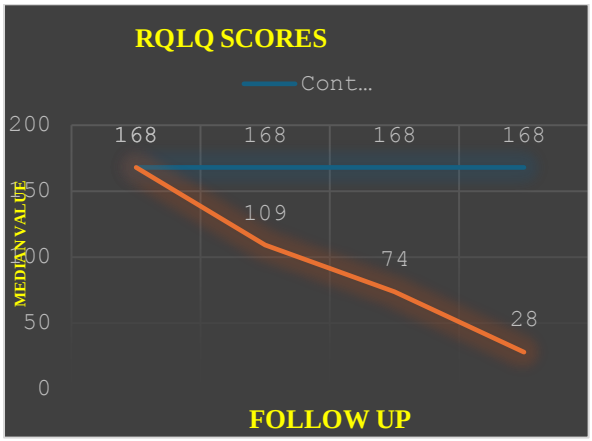
PARAMETER	CONTROL (n=325)	TEST (n=325)
Gender	N(%)	N(%)
• Male	170(52.30)	147(45.23)
• Female	155(47.69)	178(54.75)
Age		
• 10-20	15(4.61)	33(10.15)
• 21-30	37(11.38)	76(23.38)
• 31-40	50(15.38)	97(29.84)
• 41-50	78(24)	23(7.07)
• 51-60	89(27.38)	46(14.15)
• 61-70	56(17.23)	50(15.38)
Educational Qualification		
• Uneducated	108(33.23)	93(28.61)
• Primary school	58(17.84)	97((29.84)
• Secondary school	63(19.38)	68(20.92)
• Intermediate	50(15.38)	23(7.07)
• Graduate	46(14.15)	44(13.53)
Occupational Status		
• Farmer	67(20.61)	81(24.92)
• Daily wage worker	83(22.86)	91(28)
• Housewife	20(9.09)	39(12)
• Business	10(5.23)	26(8)
• IT employee	45(23.96)	52(16)
• Teachers	8(0.08)	9(2.76)
• Engineer	33(8.81)	29(8.9)
• Others	59(10.7)	36(11.07)
Annual Income		
• <50,000	39(12)	76(23.84)
• 50,001-1,00,00	167((51.38)	158(48.61)
• 1,00,001-1,50.000	26(8)	26(8)
• 1,50,001-3,00,000	30(9.23)	11(3.38)
• 3,00,001-5,00,000	37((11.38)	30(9.23)
• >5,00,000	26(8)	24(7.38)
Marital Status		
• Married	207(63.69	217(66.76)
• Unmarried	97(29.84)	96(29.53)
• Divorce	21(6.46)	12(3.69)
Alcoholic Status		
• Non-alcoholic	89(27.38)	110(33.84)
• Social drinker	113(34.76)	76(23.38)
• Alcoholic	96(29.53)	83(25.53)
• Past alcoholic	27((8.30)	56(17.23)
Smoking Status		
• Non-Smoker	168(51.69)	156(48)
• Smoker	103(31.69)	152(46.76)

• Past smoker	54(16.61)	17(5.23)

Mean and median score of the KAP questionnaire among control and test groups:



Median RQLQ score from baseline to final follow-up among control and test group:-



DISCUSSION:

The findings of the study highlights the significant role of pharmacist- led intervention in the management of allergic rhinitis. The observed improvement in the test group emphasizes the importance of continuous patient education and counseling in chronic disease management. One of the key outcome of the study was the improvement in the KAP scores among patient who received regular counselling. This suggests that structural educational intervention can effectively bridge the knowledge gap in patients. Many individuals with allergic rhinitis lack adequate understanding of their condition, leading to poor adherence and infective symptoms management. Pharmacist involvement helps address these gaps by providing clear, accessible, and repeated information. The significant reduction in the RQLQ score in the test group further supports the effectiveness of the intervention. Improve quality of life is a critical goal in managing chronic conditions, and the results indicate that the patient education can directly influence clinical outcomes. By understanding their condition better patients were able to take appropriate measures to avoid regards and manage symptoms more effectively. Medication adherence is another crucial aspect highlighted in the study. Non adherence is common issue in allergic rhinitis due to factor such as lack of awareness, misconceptions about medications, irregular follow ups the pharmacist -led counselling sessions help reinforce the importance of adherence, resulting in better treatment outcomes in test group the study also underscores the value of lifestyle modification in managing allergic rhinitis. Patients who were educated about allergen avoidance and environmental control measures showed better symptoms control. This indicates that the non-pharmacological interventions when combined with proper medications use can significantly enhance patients outcome in contract the control group showed minimal improvement highlighting the limitations of standard care without continuous patients engagement the delated counseling, provided at the final follow up was insufficient to produce significant changes, demonstrating that one time intervention are less effective than continuous support this findings are consistent with previous studies that shows that the positive impact of pharmacist intervention in chronic disease management.

CONCLUSION:

The study concluded that the pharmacist- led counselling plays a vital role in the management of allergic rhinitis. Patients who received regular counselling show a significant improvement in knowledge, attitude, and practice, along with better medication adherence and enhanced quality of life. The intervention help patients understand the condition more effectively, adopt appropriate lifestyle modification, an adhere to treatment regimens, resulting in improved resulting in improved symptom control. In contrast patient to receive standard care without continuous counselling showed minimal progress. Therefore these findings highlight the importance of incorporating pharmacist as an active member of healthcare team. Continuous patient education and follow- up can significantly enhance treatment outcome in many chronic disease conditions like allergic rhinitis. Therefore pharmacist- led intervention should be encouraged and integrated into the routine of clinical practice to ensure better

patient care, proof adherence and overall quality of life.

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