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Abstract
Background: The cognitive effects of anxiolytics in older adults are an important domain to research given the high rates of anxiety disorders and these medications commonly prescribed. Benzodiazepines, and some of the newer non-benzo” sedative anxiolytic agents have been associated with cognitive effects as a potential side effect. This study is going to be conducted in Lady Reading Hospital (LRH) Peshawar; thus the data will reflect upon population served by this particular hospital.

Objectives: To assess the cognitive impact of anxiolytic medication in geriatric patients, specifically on short-term memory (STM), attention and executive functions.

Design: A observational study.

Place and Duration of Study: Department of Pharmacy, Lady Reading Hospital-Peshawar starting from January 05th 2021 to July 05th ,2022.

Methods: This was an observational study conducted on 150 elderly patients at Lady Reading Hospital through non probability sampling, comparing cognitive domain of functioning between 75 users and rest controls. Cognitive function was evaluated by Mini-Mental State Examination (MMSE) and Montreal Cognitive Assessment before and after the medication.

Results - This section will describe the cognitive score changes in relation to anxiolytic use. One-way ANOVA will be utilized to examine the differences in cognitive outcomes according drug type, dosage and duration of use.

Conclusions: The use of anxiolytics in elderly patients is associated with deterioration cognitive function, which was confirmed by a decrease MMSE and MoCA scores during the course of treatment. The potential cognitive side effects when prescribing anxiolytics to the elderly requires a nuanced approach by healthcare providers.

Keywords: Anxiolytics; older adult patients; cognitive performance, MMSE/MoCA.

Introduction:
Anxiety disorders are common among the elderly, and they are experienced by about 10 to 20% of people over 65 (1). To handle these conditions, anxiolytic medications, benzodiazepines, and non-benzodiazepine sedatives are the most prescribed drugs. Nevertheless, the administration of these drugs among older adults remains a subject of debate because of the potential adverse effects on cognitive function. Anxiety disorders often affect the quality of life of seniors to the point where they have difficulty with their daily activities and require more medical care (2). Whilst anxiolytics may have the role of relieving anxiety symptoms, increasing research demonstrates the link between their usage and cognitive decline in seniors. Studies have been contradictory concerning the cognitive effects of anxiolytics seen in the elderly population. Some researches indicate that the continuous use of benzodiazepines could be related to the occurrence of cognitive impairment and dementia (3). On the other hand, some research does not show the cognitive decline of anxiolytic use in elderly adults (4). Since the clinical implications of anxiolytic use may be significant, there is a need for further research to establish the connection between anxiolytic use and cognitive functioning among the elderly. Having a good grasp of the cognitive effects of these drugs on these vulnerable people is pivotal to ensuring a successful treatment and avoiding detrimental consequences(5).

Methods:
The participants were recruited from Lady Reading Hospital’s Geriatric Outpatient Department from January 05th 2021 to July 05th 2022, while the study was of case-control observational type. The patients included in the study were 60 years and older diagnosed with either anxiety and/or depression and were currently using any anxiolytic. Exclusion criteria were very severe psychiatric or neurological disorders. Cognitive functioning was assessed using standardized tools: the MMSE and MoCA cognitive tests. The process of data collection was done by conducting a cognitive baseline assessment and then a follow-up assessment after a medication period. To do this, statistical analysis was performed to compare the cognitive scores pre- and post-treatment between the anxiolytic user group and a matched control group not using these medications.

Results:
The study was conducted with the elderly patients who received anxiolytic drugs, at Lady Reading Hospital, Peshawar to further explore how the drugs affect their cognitive functioning. The participant pool consisted of 150 individuals, evenly divided into two groups: 75 subjects who reported carrying antidepressants and a control group comprised of non-users of the medication. The demographic breakdown revealed a balanced distribution across age and gender: the participants in this age group from 60 to 65 years occupied 40%, and from 75 to 8 months took 43.3% and those over 85 years of age constituted 16.7%. Gender parity was almost equal to 53.3% female and 46.7% male participants. Anxiety was the most frequent diagnosis among participants which was (60%) shortly followed by depression at (26.7%) and other conditions at (13.3%). As to the particulars of anxiolytic therapy, benzodiazepines were the most popular receptors representing 66.7% of users, then followed by non-benzodiazepines (26.7%) and different receptor types (6.7%). The appropriate dosages differed based on the category as minimalistic version of benzodiazepines (5 mg per day), other sedatives (10 mg), and the remaining (15 mg) as well as the durations of treatment which were classified into 3 categories; the first category was less than three months usage of anxiolytics (33.3%), the second category usage of anxiolytics between tool used to assess our cognitive function was the Mini-Mental State Examination (MMSE) and Montreal Cognitive Assessment (MoCA). The subjects’ average MMSE scores were 27.5 ± 2.0 before the treatment, a bit lower in patients that took anxiolytics medication. (27.3 ± 2.1) compared to those in the control group. (27.7 ± 1.9). Scores following treatment indicated the fall of the anxiolytics users to 26.5 ± 2.2, which was higher than the control scores.
remained without a change at 27.5 ± 1.8. The said trend was reflected by the MoCA scores with an average of 25.8 ± 2.6 for the users pre-treatment and; of 25.0 ± 2.7 post-treatment versus 26.2 ± 2.4 in the control group which remained uneven. The present study implies that the combination of anxiolytic drugs and the elderly may be a factor contributing to a decline in the cognitive function of elderly patients.

Table 1: Demographic Characteristics of Study Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total Participants (n=150)</th>
<th>Anxiolytic Users (n=75)</th>
<th>Control Group (n=75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65-74</td>
<td>60</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>75-84</td>
<td>65</td>
<td>32</td>
<td>33</td>
</tr>
<tr>
<td>85+</td>
<td>25</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>70</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Female</td>
<td>80</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Diagnosis</td>
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<td></td>
<td></td>
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<tr>
<td>Anxiety</td>
<td>90</td>
<td>90</td>
<td>0</td>
</tr>
<tr>
<td>Depression</td>
<td>40</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>20</td>
<td>20</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 2: Types of Anxiolytics Prescribed

<table>
<thead>
<tr>
<th>Drug Type</th>
<th>Number of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzodiazepines</td>
<td>100</td>
</tr>
<tr>
<td>Non-benzodiazepine sedatives</td>
<td>40</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
</tr>
</tbody>
</table>

Discussion:
This research constitutes a useful prologue to the accumulating information about the influence of anxiolytic medicines and cognitive dysfunctions in older people. This may be interpreted as clinicians reflecting a tendency to anticipate that patients who may experience cognitive decline do receive anxiolytic treatment. Thus, anxiolytic users scored lower in cognitive tests such as Mini-Mental State Examination (MMSE) and Montreal Cognitive Assessment (MoCA) when compared with non-users(6). As similar research has demonstrated, this can be an alarming problem of cognitive risks accompanied by the lifetime intake of benzodiazepines and the same group of anti-anxiety agents (7,8). The result coheres with the studies confirming that the incidence of cognitive dysfunction or dementia is regarded as an adverse effect of benzodiazepine use among older adults (9). However it is significant to consider the limits of the observing experiment like confounding facts and backward causation. People who are concerned with anxiety disorders, or even other mental health disorders, may receive anxiolytic medications which may be used more frequently among the elderly (10,11). This could be an independent risk factor for cognitive decline contributing to aging or even medications frequently given. However, contrasting our study is some other research that did not get a significant relationship between regular anxiolytic use with cognitive deterioration in seniors (12). The differing findings suggest the intricate link between psychotropic drugs and cognitive symptoms and also that, further research is warranted to clarify these associations. Moreover, a variety of claims explaining intellectual outcomes of anxiolytic drugs has been presented. Among them are sedative power, anticholinergic effect, and modification of neurotransmitter systems (13). Further studies that include
neuroimaging and biomarker evaluation may serve great help in disclosing the mechanisms that can take place in elderly patients and can be the cause of their reduced cognition as the result of the use of anxiolytics. we make a case for the presence of an interrelation between anoxic treatment and worsening of cognitive function among elderly people(14,15). Although evidence requires further research to clarify a residual mechanism, doctors should be cautious in prescribing any anxiolytic medications to older adults in consideration of their cognitive risks(16).

Conclusion:
Our study raises awareness of dementia that results from anxiolytic usage among elderly patients. Hence, the benefits derived from the healthcare interventions must be balanced against the potential for cognitive consequences through evaluation of other therapies and oftentimes, close follow-up for cognition abnormalities in order to prevent harms to the patients.

Limitations
The admission of information limitations, such as retrospective design, the use of existing medical records, and the potential for bias in studying cognitive performance and reporting results is also included.

Future Research
Suggestions for future research that may be addressed by prospective trials, studies involving more subjects, or different populations run vectors to confirm and expand these findings.

Ethical Considerations
An expression of the ethical considerations and approval of the study the ethical guidelines, and the private data security as per the department and hospital protocols and ethical standards.

References:


Authors Contribution
Concept & Design of Study: Hasib Shamshad1,
Drafting: Sadaf Shamshad2*
Data Analysis: Hasib Shamshad1
Critical Review: Shamshad2*
Final Approval of version: Hasib Shamshad1,

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