



Original Article

Prevalence of Inflammatory Back Pain (IBP) In Patients with Backache Visiting Rheumatology OPD at Khyber Teaching Hospital, Peshawar

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ABSTRACT

Back pain is a prevalent and often paralyzing condition that impacts people of all ages and backgrounds. When it comes to back pain, it is crucial to differentiate between different kinds in order to accurately diagnose and effectively treat the problem. **Objective:** To ascertain the frequency of Inflammatory Back Pain (IBP) in patients presenting with low back pain. **Methods:** This descriptive study was conducted in rheumatology department of Khyber Teaching Hospital, Peshawar, during the period 1st September 2023 till 31st March 2024. Male and female patients with back ache (VAS >4) were enrolled and evaluated for the presence of inflammatory back pain using ASAS criteria. **Results:** The study included 138 patients, 60 (43.48%) male and 78 (56.52%) female. Mean age was 51.7 ± 5.8 years. Majority of the patients belonged to the age group 46 to 60 years 45 (32.60%). The ASAS criteria for IBP was satisfied by 54 (39.1%) patients. Statistically significant association was observed between IBP and family history of IBP. **Conclusions:** Significant proportion of patients with back pain were found having pain with inflammatory etiology. Male patients aging 46 to 60 years with family history of IBP were more likely having IBP.

INTRODUCTION

Back pain is a prevalent and often crippling condition that impacts people of all ages and backgrounds with socio-financial implications [1, 2]. When it comes to back pain, it is crucial to differentiate between different kinds in order to accurately diagnose and effectively treat the underlying etiology [3, 4]. IBP is a distinct type of back pain that is characterized by particular traits, including morning stiffness, relief with activity, and discomfort at night [5]. The identification of IBP is especially important since it might suggest the presence of underlying inflammatory diseases like Ankylosing Spondylitis (AS) [6]. Inflammatory or rheumatic condition like ankylosing spondylitis affects the axial skeleton, causing inflammation in the lumbosacral and iliac joints [7]. The timely detection and treatment have

been linked to better long-term results and preventing long term complications [8, 9]. The ASAS has created criteria to assist in the categorization of IBP, hence promoting uniform methods for its recognition [10]. Comprehending the prevalence of IBP in certain healthcare environments might provide significant knowledge about the impact of inflammatory back pain on a specific population [11, 12]. The Rheumatology OPD at KTH treats a wide patient group. The local epidemiology of inflammatory back pain and the early diagnosis and treatment of potentially significant underlying diseases may be improved by studying IBP prevalence in this scenario.

This study evaluated the prevalence of IBP and associated clinical features in backache patients at KTH's

Rheumatology OPD to better understand the burden of inflammatory back pain in our population and improve diagnostic strategies and patient outcomes.

METHODS

This descriptive study was carried during the period 1st September 2023 till 31st March 2024, in the Rheumatology Outpatient Department (OPD) at Khyber Teaching Hospital, Peshawar and a tertiary care hospital that caters to a wide range of patients. A total of 138 patients were registered who presented with a symptom of backache. Sample size was calculated using WHO sample size calculator taking 6.7% anticipated prevalence of IBP, with 5% margin of error and 95% confidence level [12]. Male and female patients in the age range 18 to 70 years complaining of back pain (VAS>4) were enrolled. Previously labelled IBP, history of lumbar surgery, patients with bone calcification disorder and patients with metastatic bone disease were excluded. Before recruitment in the research, each participant provided informed consent. Permission for the conduct of the study was granted by hospital research review committee vide letter no: 21/DME/KMC, dated: 10/8/2023. Each participant's demographic data, including age, gender, and pertinent medical history, were documented. Patients were assessed by experienced rheumatologist to determine the existence of IBP using the Assessment of SpondyloArthritis International Society (ASAS) criteria. ASAS criteria was considered positive for the presence of inflammatory back pain when any 4 of the following features were present: (a) morning stiffness > 30 min; (b) age of onset <40 years (c) no improvement by rest (d) awakening because of the pain in the second half of the night only (e) alternating buttock pain and (f) duration of back pain. The study explicitly examined key characteristics, including morning stiffness, enhancement via physical activity and discomfort experienced throughout the night. Relevant laboratory tests were performed to evaluate inflammatory indicators, such as Erythrocyte Sedimentation Rate (ESR) and C-Reactive Protein (CRP). ESR more than 15mm/hr for male and more than 20mm/hr for female was considered raised while CRP more than 1.0mg/dl was considered high. The purpose of these tests was to provide evidence for the clinical evaluation of IBP. Presence of both clinical symptoms and raised inflammatory markers was considered confirmatory for the presence IBP. Data were collected using statistical analysis program SPSS version 25.0. Means and standard deviation was computed for continuous data like age, ESR and CRP and frequencies and percentages were recorded for categorical data like gender, residence, education, profession, family history and inflammatory back pain. Inflammatory back pain was stratified by age, gender, BMI, residence, education, profession and family history to control the effect

modifiers. Post stratification chi square test was applied. P value ≤ 0.05 was considered statistically significant.

RESULTS

As illustrated in table 1, out of the total 138, male participants were 60 (43.48%). The mean age was 51.7 years with standard deviation 5.8. Majority of the participants were in the age group 46-60 years comprising of 45 individuals accounting for 32.60% of the total.

Table 1: Demographics of Study Participants (n=138)

Variables	N (%)
Gender	
Male	60 (43.48%)
Female	78 (56.52%)
Age Group (Years)	
18-30 Years	25 (18.12%)
31-45 Years	40 (28.99%)
46-60 Years	45 (32.60%)
61 And Above	28 (20.29%)
Mean Age (Mean \pm SD)	51.7 \pm 5.8

Morning stiffness was reported by 78 (56.5%) patients. 92 (66.7%) patients reported pain relief with exercise and nocturnal pain 64 (46.4%) as shown in table 2.

Table 2: Distribution of Patients with Respect to Symptomatology (n=138)

Back Pain Features	N (%)
Morning Stiffness	78 (56.5%)
Improvement with Exercise	92 (66.7%)
Nocturnal Pain	64 (46.4%)

The mean erythrocyte sedimentation rate was 23.4 ± 8.1 mm/1st hour while the mean CRP was 12.7 ± 4.5 mg/dl as shown in table 3.

Table 3: Laboratory Findings in Study Participants

Laboratory Investigations	Mean \pm SD
Erythrocyte Sedimentation Rate (ESR)	23.4 \pm 8.1
C-reactive Protein (CRP)	12.7 \pm 4.5

Inflammatory back pain was observed in 54 patients (39.1%) as reported in table 4.

Table 4: Frequency and Percentage of Patients According to Inflammatory Back Pain Based on Assessment of Spondylo-Arthritis International Society (ASAS) Criteria, (n=138)

Inflammatory Back Pain	N (%)
Yes (ASAS Satisfied)	54 (39.1%)
No (ASAS Not Satisfied)	84 (60.9%)

Table 5 reported subgroup analysis of IBP with various clinico-demographics parameters. The number of male participants with IBP were 30 (50.0%) while IBP positive female patients were 24 (30.8%). The p-value for association between gender and presence of IBP was 0.021. Inflammatory back pain was most commonly observed in the age group 46 to 60 years, however, this

distribution was statistically not significant, p-value 0.190. 31 patients (36.5%) with IBP belonged to urban areas. Majority of the patients with inflammatory back pain were having normal BMI 21 (46.7%) while no statistically significant association was demonstrated between the presence of IBP and education of the patient p-value 0.379. With respect to profession, most of the participants 22 (51.2%) were not actively attached to any profession. The association between the presence of IBP and family history of IBP was statistically significant (p-value <0.001).

Table 5: Subgroup Analysis of Patients with IBP with Respect to Various Clinico-Demographic Parameters, (n= 138)

Variables	Subgroups	Inflammatory Back Pain		Total	p-Value
		Yes N (%)	No N (%)	N (%)	
Gender	Male	30 (50.0%)	30 (50.0%)	60 (100%)	0.021
	Female	24 (30.8%)	54 (69.2%)	78 (100%)	
Age (Years)	18-30 Years	10 (40.0%)	15 (60.0%)	25 (100%)	0.190
	31-45 Years	18 (45.0%)	22 (55.0%)	40 (100%)	
	46-60 Years	22 (48.9%)	23 (51.1%)	45 (100%)	
	61 And Above	04 (14.3%)	24 (85.7%)	28 (100%)	
Residence	Urban	31 (36.5%)	54 (63.5%)	85 (100%)	0.508
	Rural	23 (43.4%)	40 (56.6%)	53 (100%)	
BMI (Kg/m ²)	<18.5 Kg/m ²	09 (60.0%)	06 (40.0%)	15 (100%)	0.162
	18.5-23.9 Kg/m ²	21 (46.7%)	24 (53.3%)	45 (100%)	
	24.0-29.9 Kg/m ²	17 (42.5%)	23 (57.5%)	40 (100%)	
	>30.0 Kg/m ²	07 (18.4%)	31 (81.6%)	38 (100%)	
Education	Primary	13 (65.0%)	07 (35.0%)	20 (100%)	0.379
	Secondary	15 (31.2%)	33 (68.8%)	48 (100%)	
	Tertiary	26 (37.1%)	44 (62.9%)	70 (100%)	
Profession	Office Job	19 (44.2%)	24 (55.8%)	43 (100%)	0.057
	Manual Labor	13 (25.0%)	39 (75.0%)	52 (100%)	
	Sedentary	22 (51.2%)	21 (48.8%)	43 (100%)	
Family History	Yes	14 (20.0%)	28 (41.2%)	70 (100%)	<0.001
	No	40 (58.8%)	28 (41.2%)	68 (100%)	

DISCUSSION

The prevalence of IBP in patients seeking evaluation for pain localized to lumbosacral region of the back, in our study was 39.1%. In an earlier research on the prevalence of IBP carried out by Rudwaleit M and Sieper J showed that 57.0% of patients were found low back pain which was inflammatory in nature [13]. This proportion is greater than our observation. This difference may be attributed to more stringent criteria for patient enrollment in the later study where patients with low back pain and additional symptoms like morning stiffness and relief with exercise were also considered. Similar findings were reported by Bittar M et al., in their study our study are however similar to the results of the study by Sieper J et al., in 2009 who reported 40.0% patients with IBP among patients presenting with low back pain [14, 15]. Poddubnyy D et al., demonstrated that 38% of patients with low back pain had IBP [16]. The laboratory results in this investigation, particularly the average ESR and CRP readings, are in agreement with

earlier research by Rusman T et al., the average Erythrocyte Sedimentation Rate (ESR) was found to be 22.5 and the average C-reactive Protein (CRP) level was 11.5 in patients with Inflammatory Back Pain (IBP) [17]. Similarly, another study reported an average ESR of 24.5 and an average CRP level of 12.8 in patients with Ankylosing Spondylitis (AS). The proportion of IBP in male patients was slightly greater than females in this study, is in coherence with earlier studies. A study discovered that patients with IBP had a male to female ratio of 2.3:1 [19]. Another study indicated a male to female ratio of 3.2:1 in patients with inflammatory conditions like ankylosing spondylitis [20]. The increased incidence of IBP in the 46-60 age bracket seen in this study aligns with findings from earlier research Rudwaleit M and Sieper J identified the greatest incidence of IBP among individuals aged 40-49 years [13]. The association between BMI and IBP found in this study is also supported by previous research. A higher BMI has been linked to an increased risk of developing IBP, as excess weight can put added stress on the spine and lead to degenerative changes [21]. The high proportion of patients with a family history of IBP in this study is also in line with previous studies, which have shown a genetic predisposition to the condition, highlighting the importance of screening and early intervention for individuals with a family history of IBP [21]. The research comprised of a small size and included people from one center, limiting its generalizability. The research did not include a control group, making it impossible to compare IBP prevalence in the studied population to the general population. Finally, the research used self-reported symptoms without objective assessments, which may have influenced outcomes.

CONCLUSIONS

A significant proportion of patients presenting with low back pain were found in inflammatory back pain. Morning stiffness and exercise improvement were common in patients with IBP. Inflammatory back pain is more common in male patients aging 45 to 60 years. No significant association was observed between the presence of IBP and sociodemographic parameters of the patients, however, the association with family history of IBP was statistically significant.

Authors Contribution

Conceptualization: AA

Methodology: N, AZ, I, IK

Formal analysis: N, AZ

Writing, review and editing: AA, N, AZ, I, IK

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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