Journal of Cardiovascular Disease Research

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 03, 2023

# A CLINICAL PROFILE AND DIAGNOSIS OF TAKAYASU ARTERITIS IN A TERTIARY CARE HOSPITAL

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**Abstract:**

**Introduction:** Takayasu arteritis (TA) is a large vessel vasculitis that favors the aorta and its branches. In 1908, Japanese ophthalmologist Mikito Takayasu found microaneurysms in the fundus and arteriovenous anastomosis while studying the retina of a 21-year-old girl. TA is found all over the world, however, it is more common in Asia than in Europe or America.

**Materials and Methods:** The descriptive study was a single-center, prospective, observational study that took place at the Department of Cardiology, Siddhartha Medical College, Vijayawada, from January 2022 to December 2022. This study covered 50 patients in total. All patients' basic demographic information, such as age, gender, family history, socioeconomic level, presenting complaints, and other essential facts, were recorded. The patients were then subjected to a systemic examination that included auscultation, a complete blood picture, a renal function test, C reactive protein levels, a chest X-ray, computed tomography or magnetic resonance angiography, coronary angiography, peripheral angiography, an aortogram, a 4-vessel angiography.

**Results:** Out of the total 75 patients that were included in the study, 40% (n=30) belonged to the 21-30 years and 31-40 years age groups each with the mean age being 26.52 ± 9.28 years. The female vs male ratio was 20: 5 (4:1) with a female preponderance. Males were comparatively elder than females with the mean age being 29.20±7.75 in Males and 25.85±9.50 in Females but this was not significant statistically (p=0.4).

**Conclusion:** A third (74%) were between the ages of 21 and 40, with a female predominance. The most prevalent symptom was hypertension. The majority of people exhibited a pulse disparity. One-third (32%) of the patients had left ventricular systolic dysfunction. ESR was greater than 20 mm/hour in three out of four instances. In terms of arterial involvement, the carotid artery, subclavian artery, and renal artery were the most typically impacted, accounting for 40%, 60%, and 48%, respectively. The majority of patients (40%) had type-V TA.

**Key Words:** Takayasu arteritis, coronary angiography, peripheral angiography, aortogram.

## INTRODUCTION

Takayasu arteritis (TA) is a large vessel vasculitis that favors the aorta and its branches. In 1908, Japanese ophthalmologist Mikito Takayasu found microaneurysms in the fundus and

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arteriovenous anastomosis while studying the retina of a 21-year-old girl. TA is found all over the world, however, it is more common in Asia than in Europe or America.[1]

According to one recent study, the prevalence of TA among Europeans is 22 per million, while Asians have 78.1 and Africans have 108.3. In South East Asian countries, it is still the major cause of renovascular hypertension. Several mechanisms have been implicated in etiopathogenesis, the most significant being the participation of gamma delta T lymphocytes in recognizing an unknown antigen in the aortic vessel wall, producing vascular damage.[2]

TA is difficult to diagnose in its early stages because there is no standard test that can effectively diagnose the condition.3 The early stage of TA is overshadowed by a slew of non-specific symptoms, including headache, fever, malaise, night sweats, rashes, anorexia, weight loss, and arthralgia, as well as a substantial rise of erythrocyte sedimentation rate (ESR) in some individuals.[4]

Physical examination, laboratory, and imaging findings can all point to TA. Several writers have proposed different diagnostic models for TA detection. The American College of Rheumatology (ACR) criteria have 90.5% sensitivity and 97.8% specificity.5 This study seeks to assess the clinical profile and diagnosis of Takayasu's arteritis patients who present to the hospital using ACR criteria.

## MATERIALS AND METHODS

**Study design:** A single-center, prospective, observational study.

**Study location:** Department of Cardiology, Siddhartha Medical College, Vijayawada.

**Study Duration:** January 2022 to December 2022

**Sample Size:** 50 patients.

The descriptive study was a single-center, prospective, observational study that took place at the Department of Cardiology, Siddhartha Medical College, Vijayawada, from January 2022 to December 2022. This study covered 50 patients in total. All patients' basic demographic information, such as age, gender, family history, socioeconomic level, presenting complaints, and other essential facts, were recorded. The patients were then subjected to a systemic examination that included auscultation, a complete blood picture, a renal function test, C reactive protein levels, a chest X-ray, computed tomography or magnetic resonance angiography, coronary angiography, peripheral angiography, an aortogram, a 4-vessel angiography.

**Inclusion/Exclusion Criteria:** The patient was considered to be suffering from TA if at least 3 of the following 6 criteria were fulfilled as per revised ACR 1990 criteria, for classification of TA-

1. Age ≤40 years at onset of disease,

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2. Claudication of the extremities,
3. Decreased pulse in the branchial artery,
4. Difference in systolic blood pressure >10 mmHg between the arms,
5. Angiographic evidence of narrowing or occlusion of the entire aorta, and
6. Bruit over the subclavian arteries or aorta.

Informed consent was taken from the study participants before the start of the study and confidentiality was ensured.

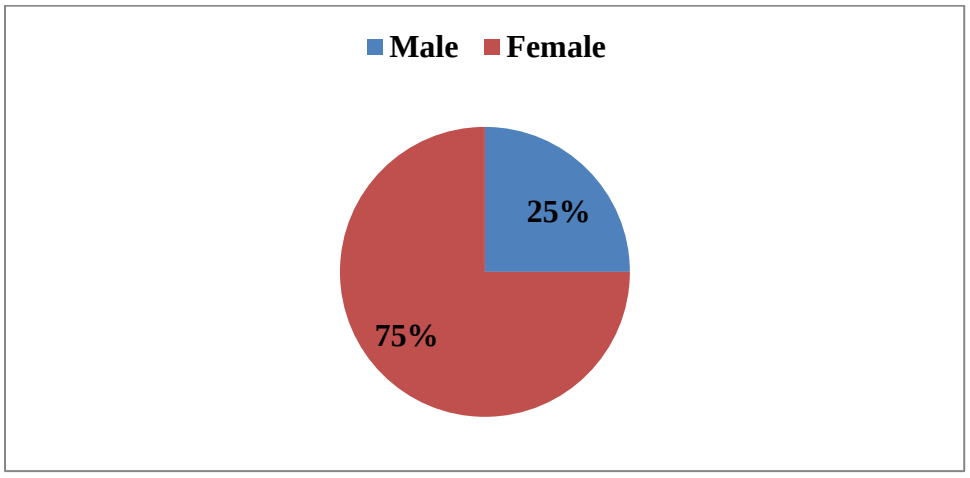
**Statistical Analysis**: Data was entered in Microsoft Excel 2010 version and analyzed using EPI INO version 7 provided by CDC Atlanta. Continuous variables are presented as mean ± standard deviation (SD) and categorical variables as counts and percentages.

## RESULTS

Out of the total 75 patients that were included in the study, 40% (n=30) belonged to the 21-30 years and 31-40 years age groups each with the mean age being 26.52 ± 9.28 years. The female vs male ratio was 20: 5 (4:1) with a female preponderance. Males were comparatively elder than females with the mean age being 29.20±7.75 in Males and 25.85±9.50 in Females but this was not significant statistically (p=0.4).

| S.No | Gender | N (%) |
|---|---|---|
| **1** | Male | 19 (25%) |
| **2** | Female | 56 (75%) |

**Table 1: Gender distribution**




**Graph 1: Gender distribution**

| S.No | Age group | N (%) |
|---|---|---|
| **1** | 11-20 years | 20 (26%) |
| **2** | 21-30 years | 30 (40%) |
| **3** | 31-40 years | 25 (34%) |

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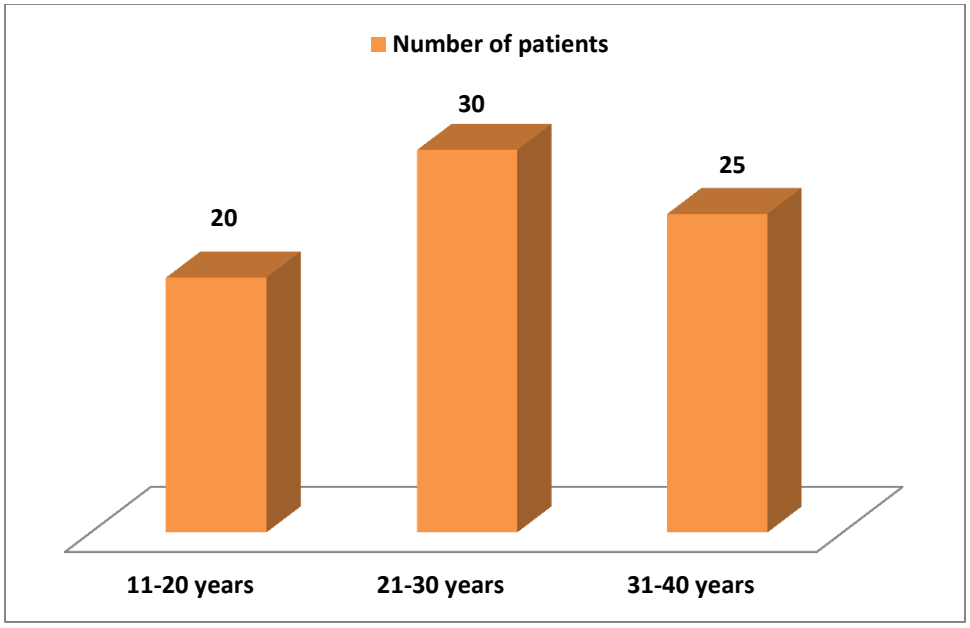
**Table 2: Age distribution**




**Graph 2: Age distribution**

| S.No | Clinical Manifestations | Number | Percentage |
|---|---|---|---|
| **1** | Hypertension | 50 | 80% |
| **2** | Discrepancy of pulses | 52 | 84% |
| **3** | Diminished pulses | 28 | 36% |
| **4** | Left ventricular systolic dysfunction | 26 | 32% |
| **5** | Seizures | 12 | 4% |
| **6** | Stroke | 12 | 4% |

**Table 3: Clinical Manifestations in Takayasu Arteritis**

| S.No | ESR Group (mm/hour) | Number | Percentage |
|---|---|---|---|
| **1** | Up to 20 | 17 | 23% |
| **2** | 20-40 | 25 | 33% |
| **3** | 40-60 | 19 | 25% |
| **4** | 60-80 | 8 | 11% |
| **5** | Above 80 | 6 | 7% |

**Table 4: ESR Findings in the Present Study**

| S.No | Angiography | Number |
|---|---|---|
| **1** | Type 1 | 15 |
| **2** | Type 2a | 0 |

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| | | |
|---|---|---|
| **3** | Type 2b | 15 |
| **4** | Type 3 | 6 |
| **5** | Type 4 | 9 |
| **6** | Type 5 (4+2b) | 30 |

**Table 5: Type of Aortic Involvement**

## DISCUSSION

In terms of demographics, the current survey discovered that around three-quarters (74%) were between the ages of 21 and 40, with a female predominance. In agreement with the study findings, SK Sharma et colleagues discovered that the average age of the patients at presentation was 24.7 years.6 The youngest and oldest patients were 6 and 45 years old, respectively. The male-to-female ratio was one and two. In the current study, the most common presentation was hypertension, which was similar to the findings of Muranjan MN et al (2000), who found that the most common presenting features were hypertension (64.7%), congestive cardiac failure (47%), weak or absent peripheral pulses, cardiomyopathy (41.1% each), and cardiac valvular affection (35.2%).[7]

There were no cases of retinopathy, hypertensive encephalopathy, or abdominal bruits. There were none in the prepulse-less phase. Another study on clinical and therapeutic features conducted by Marila Duarte Brandao Panico et al (2007) from Brazil discovered that hypertension (85.2%) and upper and lower limb claudication (69.5% and 30.5%, respectively) were present. In half of the instances, the ESR was greater than 60 mm/hour. Autoimmune disorders, tuberculosis, and HIV were shown to be associated in 19.4, 8.3, and 2.7% of cases, respectively.[8]

High ESR was found in 76% of the cases in this study, which was similar to the findings of Ye Feng et al (2017) from China, who found high ESR in 90% of the cases. SK Sharma et colleagues discovered two individuals with upper and lower limb claudication and one patient with abdominal angina in their investigation. Two patients noticed visual blurring. No patients complained of jaw claudication. Takayasu's retinopathy was not seen in any of the twenty patients who had hypertensive retinopathy. In 16 patients (54%), the ESR was greater than 20 mm in the first hour. Only three of the seven patients with systemic symptoms showed elevated ESR.[9]

The most common type of involvement was combination involvement, as seen in Japanese, Indian, and European research. Aortic arch branches alone (Type 1) were involved in 9 (25%) of the cases. This was higher than in research including Indian patients, such as Subramanyam et al.10.

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Muranjan MN et al (2000), on the other hand, discovered that Type II (52.9%) was the most common pattern of angiographic affection. This disparity in study outcomes could be related to differences in the age groups studied.

## CONCLUSION

A total of 75 patients were included in the current investigation, which took place at a tertiary care hospital between January 2022 to December 2022. A third (74%) were between the ages of 21 and 40, with a female predominance. The most prevalent symptom was hypertension. The majority of people exhibited a pulse disparity. One-third (32%) of the patients had left ventricular systolic dysfunction. ESR was greater than 20 mm/hour in three out of four instances. In terms of arterial involvement, the carotid artery, subclavian artery, and renal artery were the most typically impacted, accounting for 40%, 60%, and 48%, respectively. The majority of patients (40%) had type-V TA.

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