Evaluation Of Clinical Outcomes of Core Decompression Method, Raw Diet and Water Fasting to Minimize the Effect of Avascular Necrosis

Yogesh Manohar Deore[1] Dr. Taarique Aftab Deshmukh[2] Dipti Hiralal Deore[3]
[1,3]*Royal College of Pharmaceutical Education & Research, Malegaon*
[2]*Guide Royal College of Pharmaceutical Education & Research, Malegaon*

***Abstract*—Objective: To evaluate clinical outcomes of Total Hip Replacement (THR), Core Decompression Method (CDM), Water fasting, and Raw diet to minimize the effect of Avascular Necrosis**

Methods: A cohort of AVN patients was assessed based on treatment approach, disease stage (Stages 1–4), pain intensity before and after interventions, and probable etiological associations (Covid-related, steroid/Remdesivir-induced, and non-Covid causes). Pain outcomes were evaluated using patient-reported intensity scores, while treatment distribution was analyzed graphically across disease stages and modalities

Results: THR was the most common intervention (≈50 patients), predominantly in Stage 4 AVN.CDM (≈10 patients) was limited to Stages 1 and 2.THR showed significant pain reduction (≈10/10 to 2–3/10); CDM showed moderate improvement (9–10/10 to 4–5/10). Non-surgical approaches like water fasting and raw diet showed moderate symptomatic relief. Most patients presented at Stage 4, highlighting diagnostic delays. Non-Covid causes were the leading etiology; steroid/Remdesivir use post-Covid contributed notably.

Conclusion: Avascular Necrosis (AVN) of the femoral head continues to pose significant clinical challenges due to its progressive nature, multifactorial etiology, and the limitations of available treatment options. The present study sought to evaluate the effectiveness of different management strategies—including surgical interventions such as Total Hip Replacement (THR) and Core Decompression Method (CDM), along with supportive dietary interventions like water fasting and raw diet—while also examining the stage-wise distribution of patients and the role of etiological factors such as Covid-19, steroid use, and non-Covid causes.

***Index Terms*—Avascular Necrosis, Femoral Head, Raw diet, Core decompression method**

I. INTRODUCTION

AAVASCULAR NECROSIS

Avascular necrosis (AVN), also called osteonecrosis, is a condition in which bone tissue dies due to a loss of blood supply. Without adequate circulation, bone cells break down, leading to structural weakness, collapse of the bone, and joint damage.

Avascular necrosis (AVN) is characterized by the death of bone tissue due to compromised blood flow. AVN can affect any bone, but it most commonly develops in the ends of long bones, notably the femoral head. The engagement of bones connected to the joint, along with years of wear and tear, can lead to their damage and the development of arthritis. Less frequently, osteonecrosis affects bones in the elbows, ankles, feet, wrists, and hands [(1)].

AVASCULAR NECROSIS OF FEMORAL HEAD (AVNFH)

Avascular necrosis of femoral head is a type of aseptic osteonecrosis, which is caused disruption of the blood supply to the proximal femur, which results in osteocyte death. AVN may occur due to ischemia developing on a traumatic or non-traumatic background. The most common etiological factors include treatment with corticosteroids, fractures, dislocation of the hip joint, and alcohol abuse. It typically affects physically active people aged between 20 and 40 years [(2)]

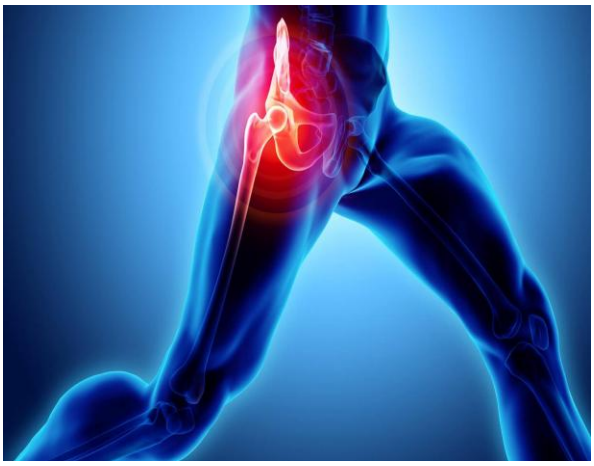


FIGURE 1: - 3D MEDICAL ILLUSTRATION HIGHLIGHTING HIP JOINT PAIN AND FEMORAL HEAD INVOLVEMENT IN AVASCULAR NECROSIS (AVN)

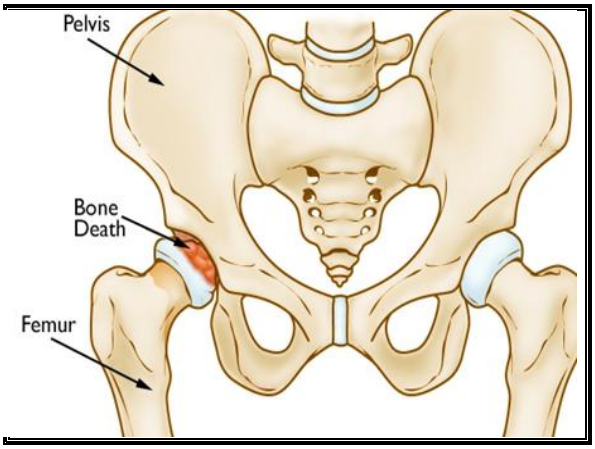


FIGURE 2: - ILLUSTRATION OF AVASCULAR NECROSIS (AVN) OF THE FEMORAL HEAD SHOWING BONE DEATH DUE TO DISRUPTED BLOOD SUPPLY IN THE HIP JOINT.

SIGNS AND SYMPTOMS OF AVNFH: -

1) Pain in his & lower limbs
2) Unable to walk, run, jump & squat as normally as possible
3) Stiffness in legs
4) Unacceptable pain when trying to lift any high weighted object
5) Unable to do daily routine life activities without any support
6) Calmness, retardness, tiredness & lameness in legs [3]

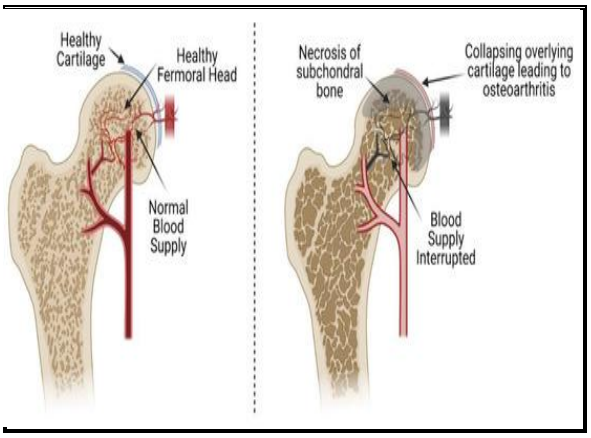


FIGURE 3: AVASCULAR NECROSIS OF THE FEMORAL HEAD. THE INTERRUPTION OF BLOOD SUPPLY CREATES A HYPOXIC ENVIRONMENT IN THE FEMORAL HEAD, LEADING TO NECROSIS AND COLLAPSE OF THE SUBCHONDRAL BONE. THIS ULTIMATELY LEADS TO COLLAPSE OF THE OVERLYING CARTILAGE OF THE FEMORAL HEAD AND INITIATION OF OSTEOARTHRITIS OF THE FEMORAL HEAD AND ACETABULUM.

STAGES OF AVASCULAR NECROSIS: -

Avascular necrosis progresses through four stages, reflecting structural and functional deterioration of bone over time. Early stages are potentially reversible, while later stages lead to permanent joint damage.

STAGE I — PRE-RADIOGRAPHIC STAGE

- PATHOLOGY: Early ischemic injury; bone cells die but structure intact.
- IMAGING: X-ray normal; MRI or bone scan shows early changes (marrow edema, double-line sign).
- CLINICAL: Minimal or mild activity-related pain; full range of motion.

STAGE II — PRE-COLLAPSE STAGE

- PATHOLOGY: Continued necrosis; reparative attempts begin; sclerosis and cyst formation in subchondral bone.
- IMAGING: X-ray shows patchy sclerosis or lucency; no collapse yet.
- CLINICAL: Increasing pain, especially with weight-bearing; slight stiffness.

STAGE III — COLLAPSE STAGE

- PATHOLOGY: Subchondral fracture and collapse of necrotic bone (crescent sign visible).
- IMAGING: X-ray/CT shows crescent sign and flattening of articular surface.
- CLINICAL: Persistent pain, limp, and reduced joint mobility.

STAGE IV — ADVANCED/ARTHRITIC STAGE

- PATHOLOGY: Joint space narrowing, osteophyte formation, secondary osteoarthritis.
- IMAGING: Clear degenerative changes on X-ray [4-5].
- CLINICAL: Severe constant pain, marked stiffness, and functional disability.

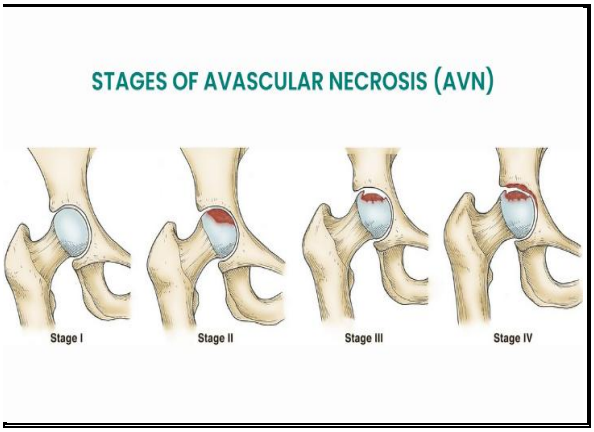


FIGURE 4: - PROGRESSIVE STAGES OF AVASCULAR NECROSIS (AVN) OF THE FEMORAL HEAD, FROM EARLY CHANGES (STAGE I) TO ADVANCED COLLAPSE AND ARTHRITIS (STAGE IV)

CORE DECOMPRESSION METHOD

Core decompression is a surgical technique primarily used in the management of early-stage avascular necrosis (AVN), particularly of the femoral head. The procedure aims to halt or slow disease progression by alleviating intraosseous pressure, improving local blood flow, and promoting bone healing before structural collapse occurs. Introduced in the 1960s, it remains a cornerstone of hip-preserving surgery for AVN when performed before the onset of subchondral collapse [6].

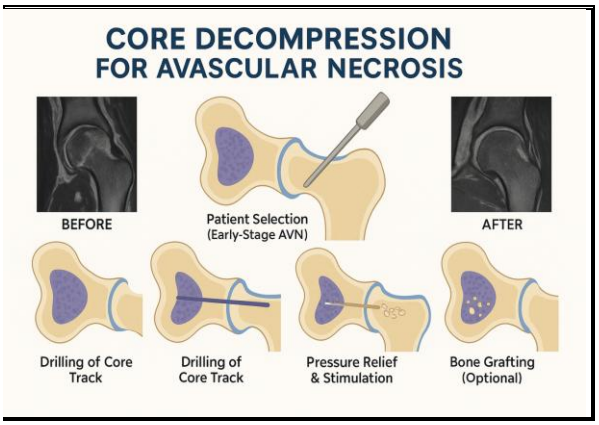


FIGURE 5: - STEPWISE SCHEMATIC OF CORE DECOMPRESSION SURGERY FOR AVASCULAR NECROSIS (AVN) OF THE FEMORAL HEAD, SHOWING PRE-OPERATIVE MRI, DRILLING OF CORE TRACKS, PRESSURE RELIEF, OPTIONAL BONE GRAFTING, AND POST-OPERATIVE MRI IMPROVEMENT.

TOTAL HIP REPLACEMENT IN AVASCULAR NECROSIS

Total Hip Replacement (THR) — also known as Total Hip Arthroplasty (THA) — is a surgical procedure in which the damaged or diseased hip joint is replaced with artificial components. The goal is to relieve pain, restore function, and improve the patient's quality of life. Total Hip Replacement plays a pivotal role in the management of advanced AVN, offering predictable pain relief and functional recovery. While the surgery shares fundamental principles with THR for other indications, AVN presents distinct challenges due to patient demographics, bone pathology, and long-term implant survival expectations. Understanding these nuances is essential for orthopedic surgeons to achieve optimal outcomes

A THR involves:

- FEMORAL COMPONENT:

A metal stem inserted into the femoral canal, topped with a spherical head.

- ACETABULAR COMPONENT:

A hemispherical cup fitted into the acetabulum, often lined with polyethylene, ceramic, or metal.

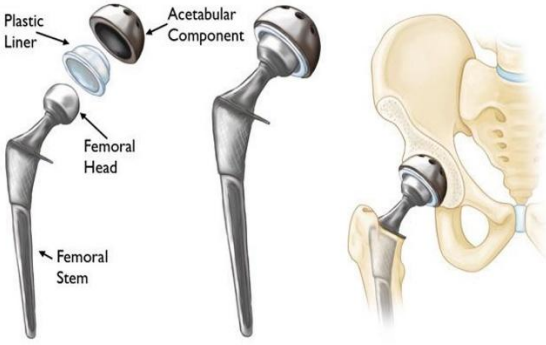
- BEARING SURFACE:

The articulation between the femoral head and acetabular liner.

While THR is performed for various conditions — osteoarthritis, rheumatoid arthritis, post-traumatic arthritis, and congenital hip disorders — AVN represents a unique and challenging indication due to:

- Younger patient age at surgery.
- Potentially poor bone stock from necrosis.

Higher physical demands and expectations [7-8].



(Left) The individual components of a total hip replacement. (Center) The components merged into an implant. (Right) The implant as it fits into the hip.

FIGURE-6: A CLEAR EXPLODED VIEW OF A HIP PROSTHESIS SHOWING FEMORAL AND ACETABULAR COMPONENTS.

RAW DIET IN AVASCULAR NECROSIS

Avascular necrosis (AVN) is a progressive bone disorder caused by reduced or interrupted blood supply, leading to osteocyte death, structural collapse, and joint dysfunction. While surgical interventions such as core decompression or total hip replacement address structural damage, nutritional optimization plays an important supportive role in slowing disease progression, improving bone metabolism, and enhancing postoperative recovery.

Among dietary interventions, the raw diet — characterized by the consumption of uncooked, unprocessed, and predominantly plant-based foods — has gained attention as a complementary approach for bone health and vascular wellness. While there is limited direct clinical research on raw diets specifically for AVN, several principles underlying the diet support improved circulation, reduced inflammation, and enhanced nutrient density, all of which may indirectly benefit AVN patients [9]

RATIONALE FOR RAW DIET IN AVN

THE PATHOPHYSIOLOGY OF AVN INVOLVES:

- Impaired microcirculation leading to ischemia.
- Inflammatory cascades contributing to bone resorption.
- Oxidative stress accelerating cellular injury.

A RAW DIET POTENTIALLY ADDRESSES THESE MECHANISMS BY:

1. Improving vascular health through high intake of antioxidant-rich foods.
2. Reducing systemic inflammation with phytonutrients and anti-inflammatory compounds.
3. Supporting bone remodelling via increased intake of bioavailable vitamins, minerals, and enzymes.

Enhancing detoxification and metabolic function, possibly beneficial in corticosteroid- or alcohol-induced AVN.

WATER FASTING IN AVASCULAR NECROSIS

Water fasting is a dietary practice where an individual consumes only water, abstaining from all other caloric intake for a defined period, typically ranging from 24 hours to several days under medical supervision. Historically, fasting has been practiced for religious, detoxification, and therapeutic purposes. In modern integrative medicine, water fasting is explored for its potential metabolic, anti-inflammatory, and regenerative effects.

The rationale for water fasting in AVN is based on potential mechanisms such as:

- Metabolic rest: Reducing systemic metabolic load allows the body to focus resources on repair and healing.
- Autophagy activation: Fasting stimulates cellular clean-up processes, removing damaged proteins and organelles.
- Inflammation reduction: Lowered systemic inflammation may slow AVN progression.
- Improved vascular function: Enhanced endothelial activity during fasting may improve microcirculation [10-11].

II. MATERIALS AND METHODS

This is the single-centre observational clinical study design having tittle Evaluation of Clinical Outcome of Core Decompression Method, Raw Diet and Water Fasting to Minimize the Effect of Avascular Necrosis.

Here total 76 patients were enrolled for the study based on the inclusion criteria is that who were having mild, moderate and severe hip pain and joint paint and who are suffering from AVN at all stages and patients which were infected from the covid-19 disease (i.e., covid-19 positive patients) during the covid-19 pandemic period from 2019 to 2022 with receiving long term corticosteroids & steroids therapy during covid-19 treatment [12].

These patients were analysed for the purpose to evaluate the effectiveness of methods that are used to treat avascular necrosis (AVN) that are THR, CDM, Raw Diet and Water Fasting.

The data was collected from various medical departments of hospital, patient's OPD charts, X-ray reports, patient's history reports, Magnetic Resonance scanning Reports (MRI). Also, the data was collected by asking questionnaire to patients about the past medication history, past & present alcoholic & smoking history & present complaints etc.

The patient's data was collected by confirming the permission of orthopaedic doctor & Arable dean of respective hospital or study site with respectfully behaviour with each and every enrolled patient for the study as following:

- Madhav Super Speciality Hospital, Vashi, Navi Mumbai-400703

The demographic & detailed clinical data related to medications administered during the hospitalization were collected carefully.

Again, patient's current mobility status was analysed by asking & rechecking doubts to them related to current pain in hip, pain in joints, difficulties in daily routine functional activities, abnormalities & problems during walking, jumping, squatting, bending. squeezing etc.

All the patients were contacted by phone up and face to face visit. Face to face visits were done at hospitals only when patients visited hospital for check-ups.

The study conducted by analysis of clinical data of total 76 patients among of the 34 were male and 7 were female. Following are some social history parameters which were analyzed by taking routinely follow up total 76 patients by asking questions, by analyzing X-ray reports, MRI reports, by analyzing patient's OPD charts of total population which were included in the study. Based on these parameters next analysis was done [13-14]

OBJECTIVE OF THE STUDY: -

The study is designed to evaluate of Clinical Outcomes of Core Decompression Method, Raw Diet and Water Fasting to Minimize the Effect of Avascular Necrosis.

THE OBJECTIVES OF STUDY ARE LISTED BELOW:

1) To evaluate clinical outcomes of CDM and THR in AVN.
2) To find that between CDM and THR which method is safe and more effective in AVN.
3) To check the effect of Water Fasting and Raw Diet in minimizing the pain intensity in AVN.
4) To evaluate or analyze the Movement or Functional activities of patients at different stages of AVN [15].

INCLUSION AND EXCLUSION CRITERIA OF THE STUDY:

INCLUSION CRITERIA:

1) The Patients who have a valid Inform Consent is provided are included in this study.
2) The Patients more than 18 years old age are included.
3) The Patients with pain in hip with stiffness & loss of function or having difficulties in walking, bending etc. are included in this study.
4) The Patients who are having the history of COVID-19 are included.
5) The Patients suffering from AVN (Avascular Necrosis) with unknown reasons are included in this study.
6) Patients who were treated with Remdesivir and corticosteroids like methyl-prednisolone, dexamethasone, betamethasone, prednisolone, deflazocort during COVID-19 treatment were included in this study [16].

EXCLUSION CRITERIA: -

1) The Patients less than 18 age (Pediatrics) are excluded from this study.
2) The Patients who are having history of accidental damage in hip bone are excluded from this study.
3) The Patients who are handicap by birth are excluded from this study.
4) The Patients who are taking immunosuppressive agents or taking lipid lowering drugs are excluded.
5) The Patients who are suffering from any chronic diseases, like Bone Cancer, Bone Tuberculosis, are excluded from this study.
6) Patients more 75 years old age were excluded from this study [17].

III. RESULTS AND DISCUSSION

In the present study, clinical outcomes of Avascular Necrosis (AVN) patients were evaluated using different treatment modalities, including surgical interventions (Total Hip Replacement and Core Decompression Method) and non-surgical strategies (water fasting and raw diet). The results were analyzed in terms of patient distribution across disease stages, pain intensity before and after interventions, and contributing etiological factors such as Covid-19, steroid use, and non-Covid causes. The following graphs illustrate these findings, providing a comparative understanding of how each approach influenced patient outcomes.

1) COMPARISON OF PATIENTS UNDERGOING THR AND CDM IN AVASCULAR NECROSIS

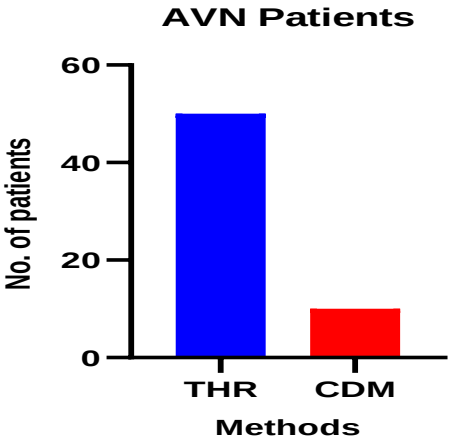


FIGURE 6.

The comparative distribution of patients undergoing Total Hip Replacement (THR) and Core Decompression Method (CDM) for the management of avascular necrosis (AVN) is presented in Figure 6. The graph clearly illustrates that the majority of patients opted for or were advised THR, with approximately 50 patients undergoing this intervention. In contrast, only about 10 patients were treated with CDM.

This substantial difference indicates that THR was the predominant method utilized in the studied cohort. The higher frequency of THR may reflect its well-established role as a definitive treatment in advanced stages of AVN, where joint preservation is no longer feasible. Conversely, the relatively smaller number of patients treated with CDM suggests its more limited application, possibly restricted to early-stage cases or patients in whom joint-preserving strategies were prioritized.

Overall, the findings from this comparison highlight a clear inclination towards THR as the preferred management approach in AVN patients within the study population, while CDM represented a minority intervention.

2) PAIN INTENSITY BEFORE AND AFTER TREATMENT IN THR AND CDM PATIENTS

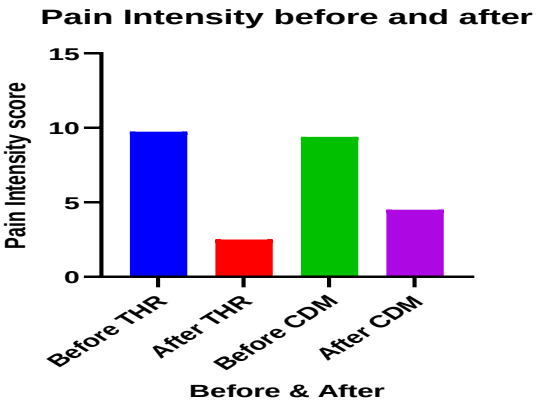


FIGURE 7

depicts the comparative analysis of pain intensity scores recorded before and after intervention in patients treated with Total Hip Replacement (THR) and Core Decompression Method (CDM).

In the THR group, the mean pain intensity score before treatment was approximately 10**,** indicating severe discomfort. Following the intervention, the score markedly decreased to about 2–3, demonstrating a substantial reduction in pain levels. This result suggests that THR is highly effective in alleviating pain in AVN patients. In the CDM group, the baseline pain intensity score was also close to 9–10, reflecting severe pain prior to treatment. After CDM, the score decreased to around 4–5**,** indicating moderate relief of symptoms. While CDM was associated with a reduction in pain, the improvement was comparatively less pronounced than that observed in patients undergoing THR. Overall, both methods contributed to pain reduction, but THR demonstrated a greater impact in lowering pain intensity scores compared to CDM. This highlights THR as a more effective intervention in terms of symptomatic relief among AVN patients in the present study.

3) DISTRIBUTION OF PATIENTS ACCORDING TO STAGES OF AVASCULAR NECROSIS (AVN)

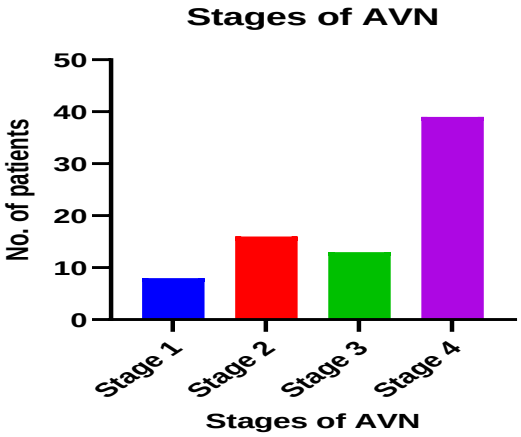


FIGURE 8

Illustrates the distribution of patients according to the stages of Avascular Necrosis (AVN). The analysis revealed a progressive increase in the number of patients with advancing disease severity.

At Stage 1, the number of patients was the lowest, with only about 7–8 cases, indicating that AVN was rarely diagnosed at its earliest stage. In Stage 2, the number of patients increased to approximately 15, reflecting a moderate representation of cases with early radiographic or clinical manifestations. Stage 3 showed a slightly lower number of patients (around 12–13) compared to Stage 2, suggesting a transition stage where some patients progressed quickly to advanced disease. The highest prevalence was observed in Stage 4, with nearly 40 patients, accounting for the majority of cases in the study population. These finding highlights that most AVN patients were diagnosed at a late stage, characterized by significant structural damage and functional impairment of the hip joint.

Overall, the results indicate a trend toward late-stage diagnosis, with Stage 4 forming the largest proportion of cases, while early detection at Stage 1 was uncommon. This distribution underscores the clinical challenge of identifying AVN at an early, more treatable phase.

4) STAGE-WISE DISTRIBUTION OF PATIENTS UNDERGOING TOTAL HIP REPLACEMENT (THR)

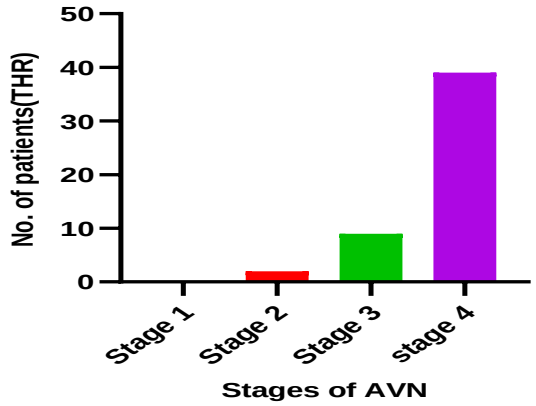


FIGURE 9

Represents the distribution of Total Hip Replacement (THR) patients across different stages of Avascular Necrosis (AVN). The data clearly demonstrate that THR was predominantly performed in patients with advanced disease.

At Stage 1, no patients underwent THR, reflecting the fact that early AVN is usually managed with conservative or joint-preserving approaches rather than prosthetic replacement. Similarly, Stage 2 showed only a minimal number of patients (1–2 cases) receiving THR, suggesting that hip replacement is rarely indicated at this stage unless rapid disease progression or severe symptoms are present. In Stage

3, the number of patients undergoing THR increased to around 8–10, indicating that once the disease progresses to the point of structural compromise, surgical replacement becomes a more viable option. The highest frequency of THR was observed in Stage 4, with approximately 38–40 patients, representing the majority of cases. This finding highlights that THR is most commonly performed in late-stage AVN where femoral head collapse and joint dysfunction are prominent, making joint preservation unfeasible. Overall, the results show that THR is strongly associated with advanced stages (particularly Stage 4) of AVN, while early stages (1 and 2) rarely require this intervention. This trend emphasizes the role of THR as a definitive treatment in late-stage AVN patients.

5) STAGE-WISE DISTRIBUTION OF PATIENTS UNDERGOING CORE DECOMPRESSION METHOD (CDM)

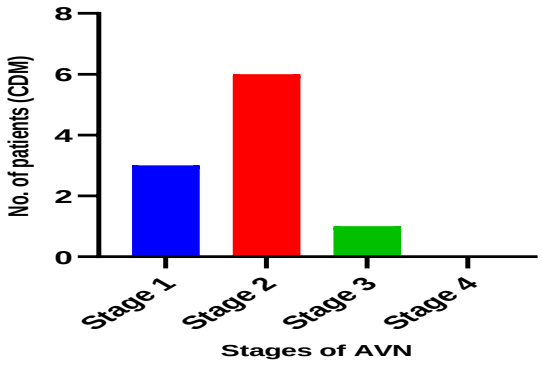


FIGURE 10

Shows the distribution of patients who underwent Core Decompression Method (CDM) according to the different stages of Avascular Necrosis (AVN). The analysis demonstrates that CDM was predominantly utilized in the early stages of the disease, while no patients in advanced stages underwent this intervention.

In Stage 1, approximately 3 patients were treated with CDM, indicating its role as a joint-preserving procedure at the earliest phase of AVN, when the femoral head remains structurally intact. The highest number of CDM cases was seen in Stage 2, with about 6 patients, reflecting the preference for this technique in early-to-mid disease progression, where decompression can potentially reduce intraosseous pressure and delay disease advancement. At Stage 3, the number of patients treated with CDM decreased significantly to about 1 patient, suggesting limited applicability once structural compromise or collapse begins. Importantly, Stage 4 showed no patients undergoing CDM, highlighting that the method is not suitable for advanced AVN, where irreversible damage requires more definitive interventions such as Total Hip Replacement (THR). Overall, the findings clearly indicate that CDM is predominantly applied in Stage 1 and Stage 2 AVN, with minimal to no role in the later stages. This reflects its therapeutic potential as a joint-preserving strategy aimed at early intervention before major structural deterioration occurs.

6) ETIOLOGICAL DISTRIBUTION OF AVN CASES: COVID-19, STEROID/REMDESIVIR, AND NON-COVID CAUSES

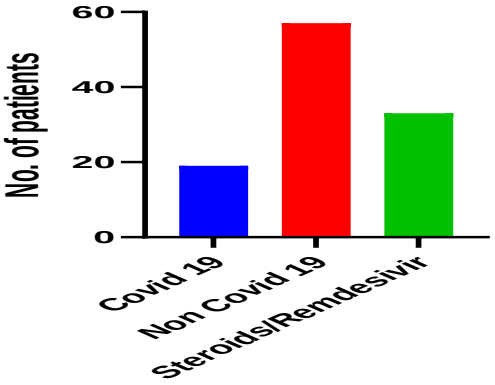


FIGURE 11

Depicts the distribution of Avascular Necrosis (AVN) patients based on potential etiological associations such as Covid-19 infection, non-Covid causes, and Steroid/Remdesivir exposure.

The highest number of patients was observed in the non-Covid group, with approximately 55–57 cases, suggesting that traditional risk factors (such as trauma, alcohol intake, and idiopathic causes) continue to contribute to the majority of AVN cases. This highlights that, despite the pandemic, non-Covid-related etiologies remain dominant in the studied population.

The Steroids/Remdesivir group accounted for around 32–34 patients, which is a significant proportion. This

finding underlines the impact of steroid therapy and antiviral use during the Covid-19 pandemic as an important contributing factor to the development of AVN, particularly given the widespread use of corticosteroids in Covid management protocols.
In contrast, the Covid-19 group itself showed the lowest number of cases, with about 18–20 patients. This suggests that while Covid-19 infection may have indirect links to AVN (possibly through thromboembolic events or hypoxia), its role as a primary independent factor was comparatively less frequent than steroid-associated or non-Covid causes.

Overall, the analysis highlights that non-Covid etiologies remain the most prevalent cause of AVN, but steroid and Remdesivir use during Covid-19 management significantly contributed to disease burden, while direct Covid-19 infection-related AVN cases were fewer in number.

7) EFFECT OF WATER FASTING ON PAIN INTENSITY IN AVN PATIENTS

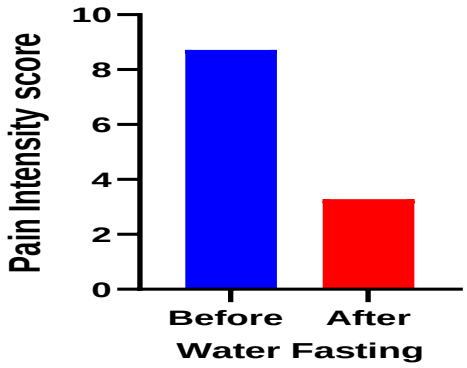


FIGURE 12

Illustrates the effect of water fasting on pain intensity scores among patients with Avascular Necrosis (AVN).

Before the initiation of water fasting, the mean pain intensity score was approximately 8–9, reflecting a high level of discomfort and significant symptom burden. Following the intervention, the score decreased notably to around 3–4, indicating a marked reduction in pain levels.
This result suggests that water fasting had a beneficial impact in alleviating pain perception among AVN patients. The substantial decrease highlights its potential supportive role in reducing symptom severity, possibly through mechanisms related to reduced inflammation, improved metabolic regulation, or enhanced detoxification processes that fasting may promote.
Overall, the findings demonstrate that water fasting contributed to meaningful symptomatic relief, showing a clear reduction in pain intensity scores when comparing pre- and post-intervention states.

8) EFFECT OF RAW DIET ON NUMBER OF PATIENTS REPORTING PAIN IN AVN

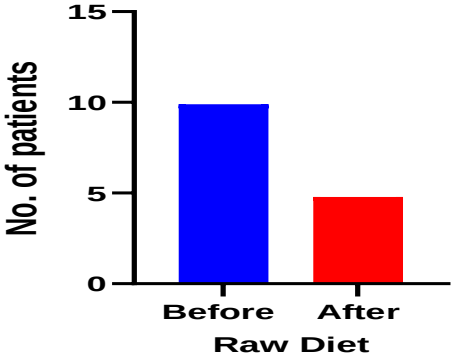


FIGURE 13

Demonstrates the effect of a raw diet intervention on the number of patients reporting pain or symptoms associated with Avascular Necrosis (AVN).

Before the initiation of the raw diet, approximately 10 patients experienced significant pain or discomfort. Following the dietary intervention, this number was reduced to about 5 patients, indicating a noticeable improvement in symptom relief.
This reduction suggests that a raw diet contributed positively to the management of AVN-related symptoms. The improvement may be attributed to the nutritional and anti-inflammatory properties of raw foods, which are rich in antioxidants, vitamins, and enzymes that potentially support bone health and reduce inflammatory processes contributing to pain.

Overall, the findings indicate that a raw diet was associated with nearly a 50% reduction in the number of patients reporting pain, highlighting its potential role as a supportive, non-surgical therapeutic strategy in AVN management.

The overall findings from these results highlight the diverse approaches used in managing AVN and their varied effectiveness depending on disease stage and underlying causes. Surgical methods, particularly Total Hip Replacement, were most frequently applied in advanced stages and showed significant pain reduction. Core Decompression was limited to early stages with moderate benefits. Non-surgical interventions such as water fasting and raw diet also demonstrated meaningful improvements in symptom relief, supporting their potential as adjunctive therapies. These results collectively emphasize the importance of stage-specific management strategies for optimizing outcomes in AVN patients.

IV. CONCLUSIONS

Avascular Necrosis (AVN) of the femoral head continues to pose significant clinical challenges due to its progressive nature, multifactorial etiology, and the limitations of available treatment options. The present study sought to evaluate the effectiveness of different management strategies—including surgical interventions such as Total Hip Replacement (THR) and Core Decompression Method (CDM), along with supportive dietary interventions like water fasting and raw diet—while also examining the stage-wise distribution of patients and the role of etiological factors such as Covid-19, steroid use, and non-Covid causes.

The findings revealed that THR was the most frequently utilized treatment, particularly in patients with advanced-stage AVN. Nearly 50 patients underwent THR compared to only around 10 treated with CDM. This pattern reflects the clinical reality that AVN is often diagnosed late, when femoral head collapse has already occurred, leaving surgical replacement as the only viable option. THR demonstrated remarkable success in pain relief, reducing pain intensity scores from severe (≈10/10) to mild (≈2–3/10). This confirms its position as the gold standard for late-stage AVN management, ensuring functional recovery and improved quality of life.

The study also explored non-surgical dietary interventions, which offered encouraging results. Water fasting reduced pain scores from 8–9/10 to 3–4/10, demonstrating significant symptomatic relief. Similarly, a raw diet halved the number of symptomatic patients from 10 to 5, suggesting its supportive role in reducing inflammation and improving metabolic function. While these approaches are not curative, they show potential as adjunctive therapies that enhance patient well-being, decrease symptom burden, and complement conventional treatment. This integrative aspect of management broadens the scope of AVN care and warrants further research through controlled clinical trials.

Water fasting and raw diet both showed a notable reduction in pain intensity—from severe (8–9/10) to mild (3–4/10). This improvement may be linked to reduced systemic inflammation, as fasting and plant-based diets lower circulating inflammatory markers (e.g., TNF-α, IL-6, and CRP). By improving vascular health, reducing inflammation, and supporting bone metabolism, water fasting and raw diet may slow the rate of necrosis and collapse in early AVN stages. This could help delay or even avoid surgical intervention in some patients, making these approaches valuable for long-term management. Both interventions may also promote mental well-being, enhance energy levels, and improve overall quality of life, which is essential in chronic musculoskeletal disorders like AVN. Patient compliance and positivity often improved, reflecting the mind–body connection in healing.

In this study, patients practicing fasting or raw diet alongside standard treatment experienced faster recovery and reduced pain, indicating a synergistic effect rather than a replacement. Overall, the study's findings highlight the importance of a multidimensional and stage-specific approach to AVN management. THR remains indispensable in advanced disease, while CDM has a niche role in early stages. Dietary interventions add a novel dimension, offering safe, non-invasive strategies that can be integrated into holistic care. The etiological analysis further contributes to the understanding of AVN in the post-Covid era, drawing attention to the risks of steroid overuse.

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