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A CRITICAL REVIEW ON DEGENERATIVE DISC DISEASE AND ITS CLINICAL ASPECT

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ABSTRACT

Degenerative Disc Disease (DDD) is a prevalent condition characterized by the gradual deterioration of the intervertebral discs, leading to pain, stiffness, and reduced mobility. While modern medicine offers various treatments aimed at managing symptoms, Ayurveda, the ancient Indian system of medicine, provides a holistic approach to understanding and addressing Degenerative Disc Disease. In Ayurveda, Degenerative Disc Disease is conceptualized as an imbalance primarily involving the vitiation of Vata dosha, which governs movement and is associated with dryness, roughness, and degeneration. The spine, considered the axis of structural support in the body, is affected by imbalances in Vata dosha, leading to the degeneration of intervertebral discs. Ayurvedic management of Degenerative Disc Disease focuses on restoring balance to the doshas, particularly Vata, and strengthening the spine and supporting tissues. This includes dietary and lifestyle modifications, herbal remedies, physical therapies, and detoxification procedures tailored to the individual's constitution and condition.

KEYWORDS - Degenerative Disc Disease, spinal cord, Ayurveda etc.

INTRODUCTION

A degenerative illness is one in which, as a result of regular wear and tear on the body or lifestyle choices like diet and exercise, the structure or function of the affected tissues or organs gradually deteriorates over time. Infectious illnesses and degenerative diseases are frequently compared. It is not always possible to avoid degenerative disc disease because it is mostly linked to aging. Good nutrition, lifestyle changes, and moderate exercise can all help avoid excruciating and incapacitating symptoms.[1]

One of the key characteristics of living things in the biosphere is their ongoing responsiveness and ability to change both in shape and most likely in function. The bodily tissues increasingly deteriorate with aging (it can now be taken beyond 40 years of age). It is referred to as Kalaja Jara (Natural Aging) in Ayurveda. This is physiological and governed by several bodily systems.[2] However, early-onset degeneration is pathological and can result in a number of illnesses, including diabetes, osteoarthritis, cataracts, degenerative disc disease, dementia, baldness, graying hair, blood vessel hardening, Alzheimer's disease, Parkinson's disease, and so on. This condition is known

as Kalaja Jara, or premature aging.[3] Every person will eventually show changes in their discs corresponding with a greater or lower degree of degeneration since disc degeneration is a normal aspect of aging. Not everyone, nevertheless, will have symptoms. Degenerative disc disease actually varies widely in kind and severity.[4]

ANATOMY OF THE SPINE:

1) Vertebrae - the bones that make up spine
2) Nerves - entire nerve system runs through spine
3) Discs are spongy materials that divide vertebrae and permit nerves to pass between individual bone segments. Discs enable the spine to bend and function as shock absorbers. There are three types of soft tissue that hold each vertebra in place: muscles, ligaments, and discs. Nearly every back issue is associated with one of these three dysfunctions.

METHODOLOGY

DATA COLLECTION - The material of degenerative disc disease collected from different articles like Pub-Med, Ayu, etc. and textbook related to degenerative disc disease.

PLACE OF WORK – In our college

DEGENERATIVE DISC DISEASE:

Often referred to as "degenerative disc disease" (DDD) of the spine, degeneration of the intervertebral disc can be excruciating and have a significant negative impact on a person's quality of life. While disc degeneration is a common aspect of aging and usually does not cause any problems, in some people it can result in excruciating, ongoing chronic pain. Another name for degenerative disc disease is spondylosis.[5]

Although it can affect any section of the spine, degenerative disc degeneration most commonly affects the cervical (neck) and lumbar (lower back); thoracic (back) spines are extremely rare. Individuals in their 20s and 30s may already have disc alterations without experiencing any symptoms. The prevalence rises with the continuation of the aging process.[6]

Mechanical function may fail in the early stages of DDD due to spontaneous or post-traumatic rips, disc degeneration, fibrosis, and collapse. This is linked to leg discomfort in the event of nerve root compression and low back pain (radiculopathy).[7]

LOW BACK PAIN:

Pain in the low back is frequent. Strains on the muscles or other soft tissues (such as ligaments and tendons) that are attached to the back bones (vertebrae) are the primary cause of low back pain. Occasionally, the intervertebral disc—the cushion between the bones—becomes stressed to the point that it bulges out, or herniates, pressing on the surrounding nerves (as in sciatica).[8]

IT IS DESCRIBED AS:

- *Acute* if it has lasted less than 6 weeks.
- *Sub-acute* if it has lasted 6-12 weeks.
- *Chronic* if it has lasted more than 12 weeks.

RISK FACTORS:

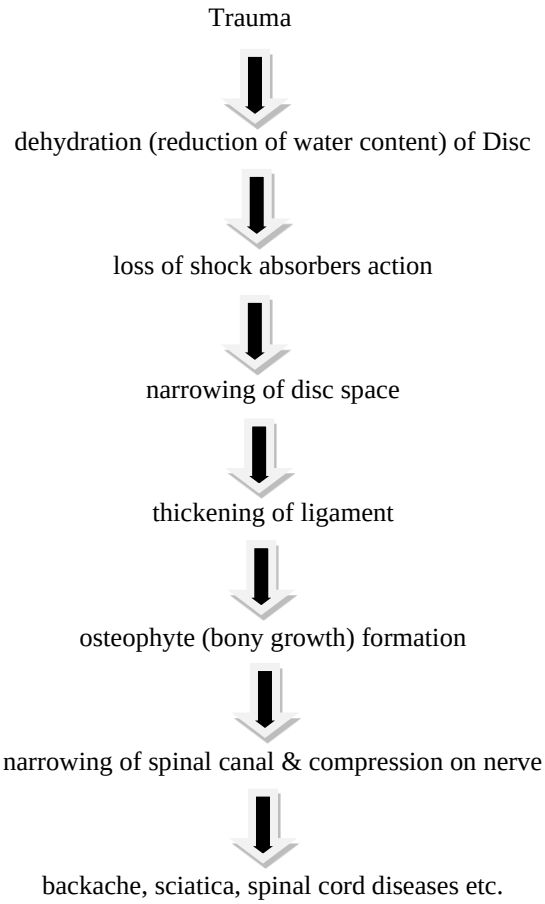
- Age
- Activity
- Smoking
- Obesity
- Vibration
- Sedentary work
- Psychological factors

COMMON CAUSES:

Infection, aging naturally, or trauma (acute or chronic/repetitive) can all lead to degenerative disc degeneration. The most prevalent cause of disc degeneration is micro- or macro-trauma from a straightforward lifting mishap.[9]

DISEASE PROCESS:

Following an injury, the spinal discs become dehydrated, or dry up, and they are unable to continue serving as shock absorbers between the vertebrae. Because the discs receive insufficient blood flow, they are unable to mend or heal themselves.



SLIP DISC OR DISC PROLAPSE OR PROLAPSE OF INTERVERTREBRAL DISC (PID):

A disc prolapse occurs when a disc prolapses beyond of its typical bounds. Although it can happen in either direction, it becomes troublesome when it enters the neural foramen or spinal canal (the area where the spine's nerves exit).[10]

CAUSES:

Any circumstance that raises the disc's internal pressure has the potential to cause injury and prolapse. One typical reason is lifting heavy things while bending the back. Sneezing or coughing might also result in a prolapse. A fall or accident injures the disc less frequently.[11]

DISEASE PROCESS:

The hard outer ring of the disc tears when there is an abrupt rise in pressure. A portion of the soft center may prolapse if the rip goes all the way through the outer ring. In addition to the disc's localized pressure on the nerve, edema and inflammation are also present. The excruciating agony brought on by a disc prolapse is partially attributable to this inflammation.[12]

SYMPTOMS OF DEGENERATIVE DISC DISEASE:

- Pain in the low back,
- Pain that worsens when sitting, bending, lifting, or twisting
- Pain that feels better when walking, changing positions, or lying down
- Periods of severe pain that gets better after a few days or months

SYMPTOMS OF SLIP DISC:

The location, severity, and direction of disc prolapse all affect the symptoms. It can result in neck discomfort or low back pain and typically affects the lumbar or cervical (neck) regions.[13] There will be pain radiating to that limb if the prolapsed disc compresses a specific nerve that supplies it.

- Heating Pain radiating from the buttocks or low back to the thighs, legs, and foot
- numbness and tingling into the legs
- weakness in the legs; prolonged sitting, jerky movements, sneezing, coughing, etc.
- Foot drop, or the inability to elevate the ankle of the foot

DIAGNOSIS:

- Blood and Urine tests to rule out other causes of pain

- MRI scan—a test that uses magnetic waves to make pictures of structures inside the body
- X-ray—a test that uses radiation to take a picture of structures inside the body, especially the bones
- Discography—dye is injected into the affected spinal area to get clearer x-ray images

AYURVEDIC MANAGEMENT:

According to Ayurveda, the spine serves as the body's principal conduit for vital energy. Spinal degeneration or disorders such as DDD are said to arise from an imbalance in the 'doshas', mainly Vata dosha, which controls movement and is typified by characteristics like dryness, coldness, and motion.

AYURVEDIC TREATMENT MODALITIES FOR DDD

DIETARY GUIDELINES

- To balance vata, choose foods that are warm, filling, and moist. Steer clear of meals that are too spicy, cold, or dry.
- **Hydration:** To maintain the health of your discs, stay well hydrated.
- **Herbal Infusions**: Taking fenugreek, ginger, and turmeric on a regular basis might have anti-inflammatory effects.

EXTERNAL THERAPIES

- **Abhyanga (Oil Massage):** To reduce discomfort and nourish the tissues, massage the entire body or the problematic area with therapeutic oils, such as sesame or Mahanarayana oil.
- **Kati Basti:** This specialist therapy is helpful for lumbar spondylosis or other disc issues. It involves building a dough dam on the lower back and filling it with heated medicinal oil.

DETOXIFICATION PROCEDURES

- **Panchakarma**: A set of cleansing procedures meant to boost immunity, purify the body, and bring equilibrium back. In order to balance Vata and relieve back pain, it may involve treatments like purgation (Virechana) or herbal enemas (Basti).
- **Rasayana Therapy**: The body is strengthened and nourished with post-detoxification revitalizing therapies.

HERBAL SUPPLEMENTS

SIMPLE HOME REMEDIES:

INTERNAL:

- Juice of Guduchi 20ml with 1 tsf Cow’s ghee
- Decoction of Guduchi, Rasna, Gokshura, Amalaki, Nirgundi (all in equal quantity). Take luke warm decoction 30 ml with 10 ml of ghee.

- Combination of powders of Ashvagandha, Shatavari, Yashtimadhu, Gokshura, Pippalimula, Chopachini (smilax china) all in equal quantity.
- Add 5 gm Ashvagandha powder to 40ml milk & 160ml water. Boil on mild fire till only milk remains. Then take warm milk by adding sugar if necessary.
- Powders of Guduchi, gokshura, Aamalaki in equal quantity with milk & sugar.

EXTERNAL:

- Application of warm paste of Nirgundi, Datura (Datura Metal) Shigru (Moringa oleifera) & Rock salt over the affected area & then cover with a cloth.
- Massage from the oil prepared by mixing Eucalyptus oil, oil of wintergreen, Camphor together.
- **Ashwagandha**: A powerful adaptogen, it reduces inflammation and strengthens muscles.
- **Guggulu:** Traditionally used to treat arthritic diseases, this herb promotes inflammation reduction and joint health
- **Bala:** renowned for being nutritious, it helps to fortify the musculoskeletal system.

LIFESTYLE CHANGES FOR DDD

- **Consistent Exercise**: Light exercises to keep your spine strong and flexible, such as yoga or walking.
- **Stress Management**: Techniques to mitigate the effects of stress, which can intensify pain, include breathing exercises and meditation.
- **Sleep:** Make sure you get enough good sleep by utilizing mattresses and pillows that support you.

AYURVEDIC FORMULATIONS-

- Ksheerabala taila 101, 5-10 drops with warm milk.
- Dashamularishta 20ml twice a day with equal water after meal.
- Eranda Paka 6-10gm with warm milk
- Maha Yogaraj Guggulu 2 tab. thrice a day with 1 tsf Ghee & warm water.
- Trayodashanga Guggulu 2 tab. thrice a day with 1 tsf Ghee & warm water.
- Ashwagandhadi churna 6gm twice with warm milk.
- Rasanadi Kashaya 20 ml twice with warm water.

PATHYA:

FOOD-

Black gram, Horse gram, wheat, rice, gingili oil, mustard oil, ghee, milk, butter, sour fruits, Dry grapes, garlic, drumstick fruits & leaves, meat,

ACTIVITIES:

Pouring of warm water, residing at non windy place, gentle squeezing, tub bath, oil massage, application of hot & oily substances, covering the body with blankets.

APATHYA:

FOOD-

Potato, Cucumber, cold drinks, ice cream, Rajma, dry meat, etc

ACTIVITIES-

Bending, sudden stretching, weight lifting, long journey on two-wheeler, sitting in abnormal posture, sitting for long time.

ADVICE:

- Keep a wide base in standing
- Keep body weight in equal distribution
- Toes must be able to function freely
- Hip must be placed right into back of the seat
- Bedding must be firm & soft
- Thin pillow
- Chair having armrest should be used
- Try to avoid constipation, cough, cold, flatulence (gas) as they worsen the condition.
- Strengthen back and abdomen muscles that support your spine with swimming, walking, or exercises recommended by a physical therapist.
- Use good posture to relieve pressure on your lower back.
- Avoid sitting for long periods.
- Consider occupational therapy or job retraining if your work requires lots of heavy lifting or prolonged sitting (such as long-distance trucking).

DISCUSSION

AYURVEDIC POINT OF VIEW

Ayurveda, the ancient Indian system of medicine, degenerative disc disease (DDD) is often understood within the context of an imbalance in the body's fundamental energies, or doshas: Vata, Pitta, and Kapha. According to Ayurvedic principles, DDD primarily involves the vitiation of Vata dosha, which governs movement and is associated with dryness, roughness, and degeneration.

Ayurvedic texts describe the spine as the axis of the body's structural support, and its health is crucial for overall well-being. Degenerative changes in the intervertebral discs, which act as cushions between the vertebrae, are believed to result from imbalances in Vata dosha, leading to dryness, decreased lubrication, and weakening of the supportive structures.

In Ayurveda, the treatment of DDD focuses on restoring balance to the doshas, particularly Vata, and strengthening the spine and supporting tissues. Here are some key components of Ayurvedic management for DDD:

Balancing Vata Dosha: Ayurvedic treatments aim to pacify aggravated Vata dosha through dietary and lifestyle modifications, herbal remedies, and therapies such as Abhyanga (oil massage), Swedana (herbal steam therapy), and Basti (medicated enema).

Dietary Recommendations: A diet that is warm, moist, and nourishing is recommended to counteract the dryness and degeneration associated with DDD. This may include incorporating foods such as cooked vegetables, soups, healthy fats, and warm beverages, while minimizing dry, cold, and processed foods.

Herbal Remedies: Ayurvedic herbs with properties that pacify Vata dosha and promote tissue nourishment and regeneration are commonly used in the management of DDD. Examples include Ashwagandha (Withania somnifera), Shatavari (Asparagus racemosus), Guggulu (Commiphora mukul), and Shallaki (Boswellia serrata).

Yoga and Physical Therapies: Gentle yoga asanas (postures) and stretching exercises can help improve flexibility, strengthen the muscles supporting the spine, and promote circulation to the affected area. Practices like Pranayama (breathing exercises) may also be beneficial for calming the mind and reducing stress, which can exacerbate symptoms.

Ayurvedic Panchakarma: Panchakarma, a detoxification and rejuvenation therapy, may be recommended in cases of severe or chronic DDD to remove accumulated toxins (ama) from the body and restore balance to the doshas. Panchakarma procedures such as Virechana (therapeutic purgation) and Basti (medicated enema) may be tailored to the individual's constitution and condition.

Lifestyle Modifications: Ayurveda emphasizes the importance of maintaining a healthy lifestyle to prevent and manage DDD. This includes adopting proper posture, avoiding excessive strain on the spine, getting adequate rest and sleep, managing stress, and engaging in regular physical activity that is suitable for one's constitution and condition.

It's important to note that Ayurvedic treatments for DDD should be personalized based on individual constitution (prakriti), imbalances (vikriti), and severity of symptoms. Consulting with a qualified Ayurvedic practitioner is

recommended to receive a comprehensive assessment and tailored treatment plan. Additionally, while Ayurveda can offer supportive care for DDD, severe cases may require conventional medical interventions such as medication, physical therapy, or surgery. Integrative approaches that combine Ayurveda with modern medicine may provide a holistic approach to managing DDD and promoting spinal health.

MODERN POINT OF VIEW

Degenerative Disc Disease (DDD) is a common condition characterized by the gradual deterioration of the intervertebral discs in the spine. While it is often referred to as a "disease," DDD is actually a natural part of the aging process and is commonly seen in individuals over the age of 40. However, it can also occur earlier in life due to factors such as genetics, lifestyle choices, and injuries.[14] The intervertebral discs are gel-like cushions located between the vertebrae of the spine, providing support, shock absorption, and flexibility to the spinal column. With age and wear and tear, these discs may lose water content, become thinner, and develop small tears or cracks. This degeneration can lead to various symptoms, including:

Pain: DDD can cause localized pain in the affected area of the spine, which may worsen with movement or prolonged sitting or standing. The pain may radiate to the surrounding muscles or down the arms or legs if the degenerated disc puts pressure on nearby nerves.

Stiffness and Reduced Mobility: As the discs lose their elasticity and flexibility, individuals with DDD may experience stiffness and difficulty bending or twisting the spine.

Numbness and Tingling: If the degenerated disc compresses spinal nerves, it can result in sensations of numbness, tingling, or weakness in the arms, hands, legs, or feet.

Decreased Quality of Life: Chronic pain and reduced mobility associated with DDD can impact an individual's ability to perform daily activities, work, and participate in recreational pursuits, leading to a decreased quality of life. While degenerative disc disease is primarily age-related, several risk factors can contribute to its development or exacerbation, including:

Genetics: There is evidence to suggest that genetic factors play a role in predisposing individuals to DDD. Family history of spine-related conditions may increase the likelihood of developing the condition.

Lifestyle Choices: Factors such as smoking, obesity, poor posture, and sedentary behavior can accelerate disc degeneration and exacerbate symptoms**.**

Trauma or Injury: Acute injuries or repetitive stress to the spine, such as heavy lifting, falls, or sports-related activities, can contribute to disc degeneration.

Occupational Hazards: Jobs that involve heavy lifting, repetitive bending, or prolonged sitting may increase the risk of developing DDD.

Medical Conditions: Certain medical conditions, such as osteoarthritis, rheumatoid arthritis, and spinal stenosis, can contribute to or exacerbate disc degeneration.

Treatment for degenerative disc disease typically focuses on managing symptoms, improving function, and preventing further deterioration. Conservative treatment options may include:

Pain Management: Over-the-counter or prescription medications, such as nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxants, or analgesics, may be used to alleviate pain and inflammation associated with DDD.

Physical Therapy: A customized exercise program designed to strengthen the muscles supporting the spine, improve flexibility, and correct posture can help alleviate symptoms and prevent future injury.

Lifestyle Modifications: Adopting healthy lifestyle habits, such as maintaining a healthy weight, quitting smoking, practicing good posture, and engaging in regular exercise, can slow the progression of DDD and reduce symptoms.

Minimally Invasive Procedures: In cases where conservative measures fail to provide relief, minimally invasive procedures such as epidural steroid injections or nerve blocks may be considered to reduce pain and inflammation.

Surgery: Surgery for degenerative disc disease is typically reserved for severe cases or when conservative treatments have been ineffective. Procedures such as spinal fusion, artificial disc replacement, or discectomy may be recommended to stabilize the spine and alleviate symptoms.

It's important for individuals with degenerative disc disease to work closely with healthcare professionals to develop a comprehensive treatment plan tailored to their specific needs and goals.[15] While DDD may be a normal part of aging, proactive management strategies can help improve function, alleviate pain, and enhance overall quality of life. Additionally, ongoing research into regenerative medicine techniques, such as stem cell therapy and tissue engineering, holds promise for future treatments aimed at repairing or regenerating degenerated intervertebral discs.[16]

CONCLUSION

Intervertebral disc disease is growing increasingly common in society as the population ages and is a major factor in years to life impairment. The biopsychosocial circumstances surrounding individuals who exhibit symptomatic back pain due to an intervertebral disk complicate it. Concordant radiological and clinical results are necessary for a precise diagnosis. With a hopeful future, researchers are looking at biomarkers and specialized scans to shed more light on intervertebral disc illnesses. Although they can be performed, confirmatory procedures like a provocative discogram are not highly specific. In the early stages of therapy, conservative care is preferable to surgical surgery. A useful short-term therapeutic pain relief and diagnostic tool is the injection of both local anesthetic and steroids. In an attempt to repair and regenerate the disc, recent developments in restorative and reconstructive treatment strategies in molecular science, including cell, gene, and growth factor therapy and percutaneous intervertebral disc techniques, have presented some difficulties but also shown encouraging

outcomes. Surgery is the final resort; doctors disagree on whether to perform decompression, fusion, or disc replacement, and the options are further diversified by the patient base and level of surgical skill. Recent advancements in endoscopic spine surgery provide fresh perspectives on disc replacement surgery and pain control techniques.

CONFLICT OF INTEREST -NIL

SOURCE OF SUPPORT -NONE

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