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Interlink of Cardiovascular diseases and Male infertility; promoting lifestyle changes and naturopathy as a solution.

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Abstract
Cardiovascular diseases like ischemic heart disease, stroke, heart failure and congenital heart defects occurs through myocardial infarction and angina which mostly is caused by the atherosclerosis or stenosis or a complete occlusion of a single or more arteries have a high mortality rate. All these symptoms are related to male infertility through the underlying pathophysiological issues and the use of medicines with side effects. Different Studies have put forwarded the fact that reports both male and female infertility disorders and cardiovascular diseases have a strong association. This paper tends to focus on the fact that naturopathy and few lifestyle changes in males with minor or severe infertility issues can prevent the initiation of any cardiovascular diseases in the future.

Keywords: Cardiovascular, Male infertility, Naturopathy, Underlying, Lifestyle

1. Introduction

Male infertility is a range of health anomalies that lowers the potential of a male to fertilize or impregnate his male counterpart. According to WHO, a couple being unable to conceive even after one prolonged year of frequent and unprotected sexual intercourse can be termed as infertile (Stephen W. L et al, 2023). Almost about 20% of the infertility cases are mainly due to the sexual disorder of the male and another 30% -40% of the infertility cases occurs with male infertility being a contributing factor(Hull MG et al, 1985). Various underlying causes like endocrinological disorder, genetic mutations or abnormalities, urogenital anomalies, inflammatory diseases, environmental toxicity, usage of different drugs and medicines etc results in sexual dysfunction like anejaculation or prejaculation, impotency, erectile dysfunction etc. Apart from this, cryptochridism, testicular defects, histoarchitectural changes in the epididymis, vas deferens and other male reproductive ducts leading to azoospermia, oligospermia, asthenozospermia and sperms with decreased motility finally results in male infertility (Winters BR et al, 2014). Factors like stress, and hyper lipidemia too causes male infertility through the increased production of ROS. Cardiovascular diseases encompass an array of ailments of the heart and the blood vessels supplying heart, brain and other vital organs. The most common cardiovascular diseases are ischemic heart disease, stroke, heart failure and congenital heart defects. Patients with ischemic heart disease suffer from myocardial infarction and angina which is caused by the atherosclerosis sometimes leading to even stenosis or a complete occlusion of a single or more arteries. Patients with ischemic heart disease have a high mortality rate as compared to many other patients with other disorders (Antman E. M et al, 2004). Apart from this, another very serious condition of the CVD array is the stroke resulting from atrial fibrillation. Congestive heart failure on the other hand serves as the final stage for various heart defects. This cardiovascular disease has been reported to take many lives annually. Hypertension and deranged neurohormonal profiles leads to the congestive heart failures in patients. Males are known to be more prone to fatality regarding heart failures than women (Gaziano T, Reddy KS, Paccaud F, et al. 2006) Male fertility and heart diseases have been recognized as serious health concerns since time immemorial, but a posssible interlink between the two has been studied only recently. Different Studies reports a linkage between both male and female infertility disorders and cardiovascular diseases, but this paper tends to focus specifically on the association of male infertility to heart diseases.

2. Association of male infertility to heart diseases.

Many recent studies have suggested a correlation between male infertility and various heart abnormalities but without a proper underlying mechanism linking them. A study by Peng Ciao Chan published in 2022 suggested that male infertility is directly linked to the risk of cardiovascular diseases in males. The study performed was a cohort study in the nationwide population of Taiwan. The study conducted involved a huge number of

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Seasonal variation of heavy metals in three major water bodies of Guwahati City, Assam, India

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ABSTRACT

Heavy metals are reported as endocrine disruptors that cause adverse health hazards. Heavy metals are being passed into the aquatic ecosystem through natural and anthropogenic sources such as geological weathering and atmospheric deposition, discharge of municipal, industrial and agricultural runoff. As a result, the water quality of aquatic ecosystem is deteriorating. Deepor Beel, Borsola Beel and Bharalu River are the largest notable water bodies of Guwahati City which is facing threat due to industrialization and urbanization. In this context, the present study aims at investigating the presence and seasonal variation of heavy metals (As, Cd, Cr, Cu, Pb, Hg and Ni) in water of these water bodies. The water samples were analyzed using Inductively Coupled Plasma-Optical Emission Spectrophotometer (ICP-OES; Thermo Scientific iCAP-7000 series). The present study revealed the presence of heavy metals in Deepor Beel, Borsola Beel and Bharalu River. Concentrations of heavy metals were recorded to be higher during monsoon season as compared to winter season.

Key words: *Aquatic ecosystem, Heavy metals, Seasonal, Water bodies, Urbanization.*

Introduction

Heavy metal pollution in aquatic environment is one of the major global challenges as they are non-biodegradable, persistent in nature, toxic at very low concentration and bioaccumulate causing health hazards to aquatic inhabitants that also affects other organisms and ultimately human through food chain (Jayakumar *et al.*, 2008; WHO, 2008). Heavy metals are naturally occurring elements having high density of >5 g/cm^3 and atomic number greater than 20 excluding alkaline earth elements, alkali metals, lanthanides and actinides (Kopp and Kroner, 1972; Jarup, 2003; Celik and Kunene, 2021). The natural sources of heavy metals are soil leaching and chemical weathering of minerals. The anthropogenic sources of heavy metals in aquatic ecosystem are municipal sewage, industrial effluents, road runoff, agricultural runoff, urban storm, mining of coal and ore, landfill and atmospheric sources (Biney *et al.*, 1994; Zarazua *et al.*, 2006).

Guwahati is a major metropolitan city and known as the Gateway of the entire North East India. It is located within 26.13° N 91.77° E at the southern bank of the river Brahmaputra and the foothills of the region. Guwahati is experiencing a drastic change and rapid urbanization as it is a central place for business, tourism, health and education. As a result Guwahati's aquatic system and their inhabitant species are facing a threat. The Deepor Beel, Borsola Beel and Bharalu River which are the notable water bodies of the Guwahati city that provided drinking water to native people, shelter to a large number of biodiversity. But nowadays, they have become highly polluted due to dumping of municipal, industrial and household wastes. The

Taslema Begum
Asst. Prof.
Dept. of Zoology

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Chapters in Books	Ethno-zoological study of animal-based medicine practiced by traditional healers and indigenous tribes in Northeast India	Traditional Knowledge and Contemporary Thinking in Assam	978-93-91166-67-0	Author	Global Net Publication	National	Dr. Anjana Bhattacharya and Dr. Janardan Pathak		May 16, 2022
Chapters in Books	Impact of Endocrine Disrupting Chemicals on Reproductive Systems	Emerging Trends in Scientific Research	978-93-90420-98-8	Author	Akinik Publications	National	Dr. Arif Uddin , Dr. Nurul Islam , Dr. AMM Hassan	http://doi.org/10.22271/ed.book.952	Jun 5, 2020

Taslema Begum
Asst. Prof.
Dept. of Zoology

Traditional Knowledge and Contemporary Thinking in Assam

Editors :
Dr. Anjana Bhattacharya
Dr. Janardan Pathak

21

Ethno Zoological Study of Animal-Based Medicine Practiced by Traditional Healers and Indigenous Tribes in North-East India

Taslema Begum
Jogen Chandra Kalita

Abstract

India has a vast faunal, floral, and cultural diversity, with many ethnic tribes relying heavily on the traditional medical system for basic health treatment. Documentation and evaluation of indigenous healing knowledge may aid in the development of novel medications for human health. The current study aims to investigate several zoo therapeutic medicinal uses in the traditional health care system among the different ethnic groups of North East India.

Keywords: *Cultural diversity, Ethnic tribes, North East India, Traditional health care system, Zoo therapeutic*

Introduction

The name "ethno biology" is derived from the words "ethnos" and "biology." According to the 19th century definition, ethnology is "the study of biological sciences as applied by the many people's investigated by ethnology" [1]. Following that, sub divisional names such as ethno botany [2], ethno zoology [3], ethno science [4], and ethno history were adopted (mid-20th century). The history of ethno biology is divided into four stages [5]. Ethno biology I cover the time before

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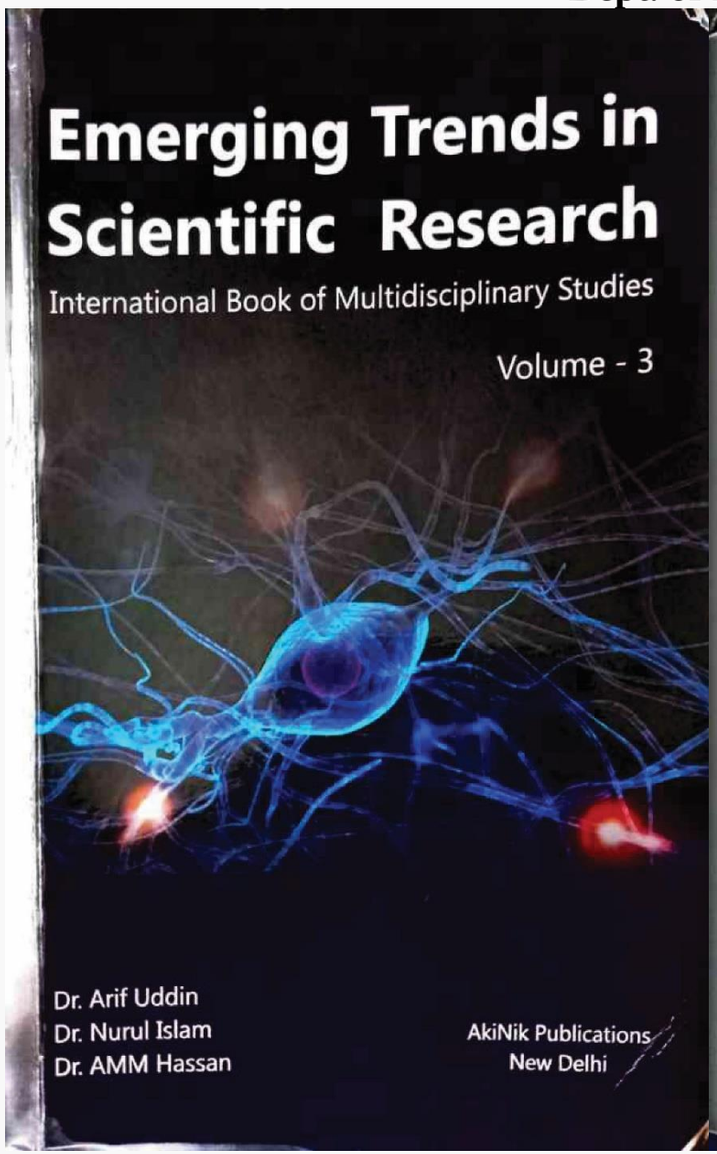
Dept. of Zoology



Chapter – 6

Impact of Endocrine Disrupting Chemicals on Reproductive Systems

Taslema Begum and Jogen Ch. Kalita

Abstract

Over the recent years, several *invitro* and *invivo* studies have revealed an increased incidence of infertility worldwide. Reproductive health disorders are often related to hormonal instability. Endocrine disrupting chemicals (EDCs) are substances that are present in environment, personal care products and food sources. It can affect the reproductive health as it intervenes with the normal functioning of the natural hormone system. Exposure to EDC can have long term effects and can even be transgenerational.

Keywords: Infertility, Endocrine disrupting chemical, transgenerational

Introduction

Endocrine Disruptor Compounds (EDCs) are substances that interfere with the normal functioning of endocrine system, causing a wide range of effects on the hormonally-controlled physiological parameters or functions. It can be natural or artificial depending on from where it is obtained. However, artificial chemicals have presently been the major concern all over the world. EDCs are likely to interfere with the action of endogenous hormones, its production, secretion, metabolism and transport by binding to the hormone receptors [1]. After binding to the receptors, the EDCs can trigger either one of the two types of responses: agonistic effect which means mimicking the natural hormone action and antagonistic effect which is preventing the binding of the natural hormone [2].

Several studies in the last few years have pointed out that many of the environmental pollutants, drugs, solvents and chemical compounds could imitate or antagonize the effects of natural steroid hormones, like estrogens and androgens. These hormones have a key effect on the reproductive system, development and cellular homeostasis [3].