

Two-day National Conference on 20th & 21st January ,2020 Technical Session III(Physiology and Allied Sciences)

Activity report

Name of the event : Indian Science Congress Association Kolkata Chapter, January 2020

Topic : Science and Technology : Physiology and Allied Sciences(Food and nutrition in rural health & diseases , Stress & Health , Communicable and non Communicable diseases : Prevention and control , Sports and yoga in rural health development).

Invited Speakers:

- 1) Dr. Amit Bandyopadhyay , Assistant Professor , Department of Physiology , University of Calcutta
- 2) Dr. Rajen Halder , Assistant Professor , Department of Physiology , University of Calcutta
- 3) Dr. Sujata Law , Assistant Professor , Department of Biochemistry and Medicinal Biotechnology , Calcutta School of Tropical Medicine , Kolkata
- 4) Dr. Gauri Prasad Dutta , Associate Professor , Department of Physiology , Ram Mohan College
- 5) Professor Prabir Kumar Mukhopadhyay , Reproduction & Environmental Toxicology Laboratory , Department of Life Sciences , Presidency University .
- 6) Professor Sanjit Dey , Department of Physiology, University of Calcutta .
- 7) Professor Tania Das , Division of Molecular medicine , Former Dean , Bose Institute.
- 8) Dr. Asima Das , Associate Professor , Department of Physiology , Serampore College
- 9) Dr. Amit Krisendu De, Indian Science Congress Association.

Date : 21/01/2020

Time : 11:45- 01:45(1st Session) & 02:30 – 04:30 PM (2nd Session)

Seminar Platform : Auditorium

Organized by : Indian Science Congress Association , Kolkata Chapter & Surendranath College , Kolkata (Formerly Ripon College)

Summary :

A Seminar on “ **Physiology & Allied Sciences** ” was held by Indian Science Congress Association , Kolkata Chapter & Surendranath College , Kolkata on **21 January 2020 in College Auditorium** .

Our 1st Speaker has delivered his lecture on the topic of Sports and Yoga – a Futuristic Approach for Rural Development .

Our second Speaker has delivered his lecture on the topic of smoking augments oxidative damages in erythrocyte & role of Vitamin C as Scavenger in detail .

Our 3rd speaker said about Chronic exposure to sunlight (UV radiation) leads to alteration of Limbal Epithelial Stem / Progenitor Cells in Cornea.

Our 4th Speaker has delivered his lecture on the topic of Anti- Oxidative and Anti – Inflammatory Potency of *Amorphophallus campanulatus* against Ethanol Induced Tissue Damage .

Our 5th speaker has also delivered a topic on High Protein diet , & remedy against arsenic induced female reproduction cataphotes.

Our 6th speaker has delivered his lecture on Rural or Urban , it's time to Bid farewell to Smokeless (Gutkha) Chewing : It promotes neuronal cell death. Our 7th Speaker said about the topic Do cancer stem cells have brain ? .

All lectures were really so much interactive and informative and helpful for everyone . They said their topic in details and very clearly and totally experimental based .

The session for Physiology & Allied Sciences ended with an intensive interactive session and vote of thanks by Our beloved madam Dr. Mira Sil Ghosh.

Details information about the above seminar :

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PHOTOS OF ISCA2020

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Overview of Kidney Stone Disease and Its Cause and precautions

SHREYA MALICK 1, SWETA SARKAR 1, SUSANTA SADHUKHAN 2

1Department of Zoology, Biju Krishna Girls' College, Howrah; (Presenters of the poster)
2Guest Lecturer of Biju Krishna Girls' College, Howrah; Department of Zoology



INTRODUCTION

- The term "Urolithiasis" is originated from three Greek words, 'ouron' (urine), 'oros' (flow), and 'lithos' (stone).
- It is the process of forming stones in the kidney, bladder and/or urethra and is considered to be one of the most common urological disorders.
- In India, approximately five to seven million patients suffer from stone disease.

PREVALENCE

- Areas of high incidence of - British Isles, Scandinavian countries, Northern Australia, Central Europe, Northern India, Pakistan and Mediterranean countries.
- In the United States, kidney stone affects 1 in 11 people and it is estimated that 600,000 American suffer from urinary stones every year.
- In Indian population, about 12% of them are expected to have urinary stones and out of which 50% may end up with loss of kidney functions.
- The northeastern states of India, which border Burma (Myanmar) on one side can be said to fall in the broad belt area of stone disease.

CAUSES

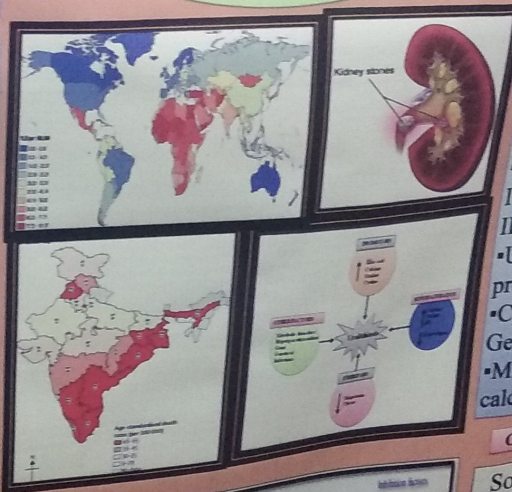
- The leading cause of kidney stones is lack of water in the body. A low fluid intake, with a subsequent low volume of urine production, produces a high concentrations of stone-forming solutes in the urine.
- When there is not enough water to dilute the uric acid, a component of urine, the urine becomes more acidic and concentrated.
- Medical conditions such as Crohn's disease, urinary tract infections, renal tubular acidosis, hyperparathyroidism, medullary sponge kidney, and Dent's disease increase the risk of kidney stones.

Water for Kidney Stones

- Drinking lots of water helps flush out toxins that accumulate in the kidney. Drinking water is an excellent preventive measure to avoid formation of kidney stones. It also helps to flush out the kidney and prevent the formation of kidney stones.

OBJECTIVES

- The main objective is to find out what factors play major roles to cause this disease.
- Are the different dietary habits and genetic factors playing any role for the high prevalence of urolithiasis?
- Also to find out what are the remedies and preventive measures which can be looked out by the scientist and health professionals to contain this disease?



EPIDEMIOLOGY

- Globally, the prevalence and recurrence rates are increasing with limited option drug. Though it affects all ages, sexes and races but the highest incidence of kidney stone is in 30-45 years of age group.
- The "**STONE BELT**" of India occupies part of Maharashtra, Gujarat, Punjab, Haryana, Delhi and Rajasthan due to dry, hot climate. KSD is a multifactorial urologic disorder resulting from the combined influence of epidemiological, biochemical and genetic risk factors.
- Male: Female ratio 3:1.

TYPES

- Major types of stones in urolithiasis are:
- Calcium stones (70-80%) :-
I. Calcium oxalate :- most common
II. Calcium phosphate
 - Uric acid stone (5-10%) :- caused by high protein diet and gout
 - Cystine stone (1%) :- fairly uncommon. Generally related to a hereditary disorder.
 - Mixed stone (50-60%) :- caused by mixed calcium oxalate-phosphate.

GENES WHICH INFLUENCE UROLITHIASIS

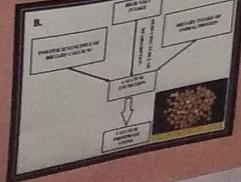
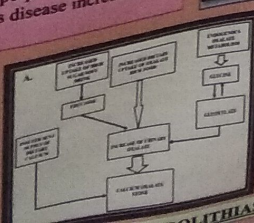
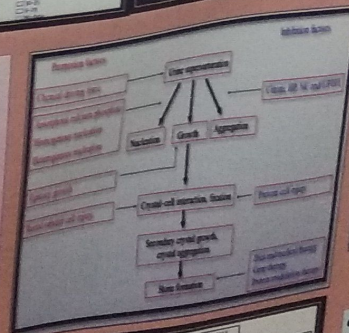
Some of the significant genes which play role in stone formation include: calcitonin receptor gene (CTR), vitamin D receptor (VDR), Urokinase, Interleukin, E-Cadherin, Androgen & oestrogen receptor gene, VEGF (vascular endothelial growth factor) and Arginine p21.

PREVENTION

SYMPTOMS

- Abdominal pain
- Nausea and Vomiting
- Fatigue
- Elevated temperature, Blood pressure and respiration
- Presence of UIT

- Patient education :- Hydration- drinking 6-8 liter of water per day
- Diet:- Low intake of sodium, protein etc.
- Medication:- Exercise and increased activity.



CONCLUSION



Need of Designing the Sitting Arrangement of School Children Based on Ergonomical Consciousness

Tamal Ghorai¹, Amalendu Samanta² & Sahana Mazumder³

1-Research scholar, Department of Physiology, Rammohan College, University of Calcutta.

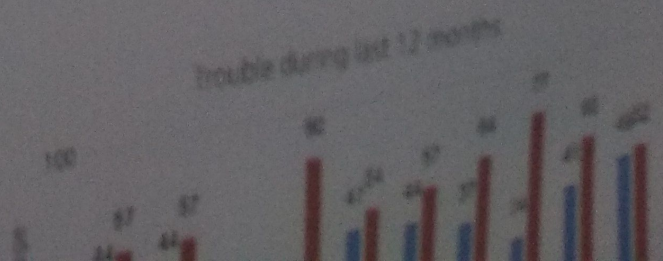
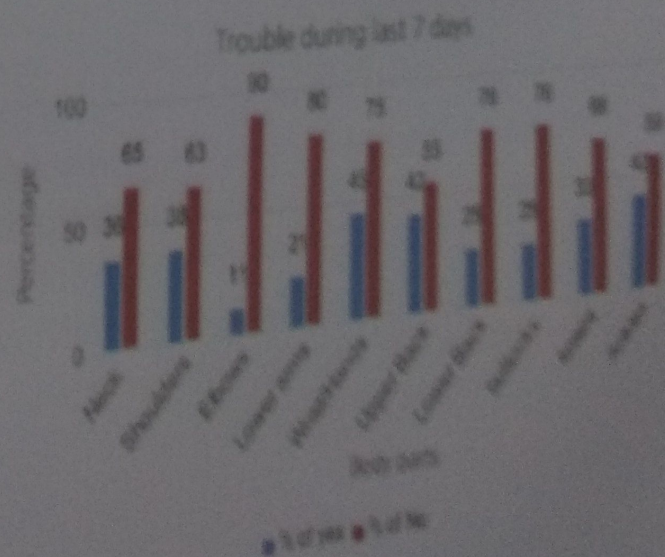
2-Ex-ARO Scientist, All India Institute of Hygiene & Public Health, Kolkata.

3-Associate Professor, Department of Physiology, Rammohan College, University of Calcutta.

It is an essential criterion for maintaining the growing Children. Anthropometric correct design of ergonomically improved procedures of school furniture have been procedure utilizes several equations relating to be evaluated.

er be considered for designing, it helps to reduce musculoskeletal disorders (MSDs) students in terms of attentiveness while

make any design of furniture which lead to well-being, convenient and bring motive for Asian population to have their own furniture which can result to comfortability. So the





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POLYCYSTIC OVARIAN SYNDROME (PCOS) - A BURNING ISSUE IN INDIA

PCOS is a complex endocrine disorder characterized by irregular menstrual cycles, excess androgen production, and insulin resistance. It affects approximately 10% of women of reproductive age in India. The condition is often associated with obesity, diabetes, and cardiovascular disease.

Signs and symptoms

- Irregular menstrual cycles
- Excess androgen production (hirsutism, acne)
- Insulin resistance
- Obesity
- Infertility
- Polycystic ovaries

Medical

Medical treatment for PCOS involves a combination of lifestyle changes and medications. Lifestyle changes include maintaining a healthy weight, regular exercise, and a balanced diet. Medications include oral contraceptives, insulin sensitizers, and anti-androgens.

POLYCYSTIC OVARIAN SYNDROME (PCOS) - A BURNING ISSUE IN INDIA

Presented by: Dr. Ashwini Choudhary, Senior Res. Scientist, IISc, Bangalore

Polycystic ovarian syndrome (PCOS) is a heterogeneous endocrine disorder common among premenopausal women, characterized by the presence of numerous cysts on the outer edges of the ovary. Women with PCOS are at high risk of several other conditions like insulin resistance, type 2 diabetes, cardiovascular disease, etc.

PCOS was originally described by Stein and Lenzwiler in 1955 as a triad consist of amenorrhea, hirsutism and obesity in women who had multiple cysts on their ovaries. It was not until 1990's at the National Institute of Health (NIH) sponsored conference of PCOS that formal diagnostic criteria was proposed and thereafter largely utilized.



Causes



Signs and symptoms



Treatment

Non-medical

- Low calory diet
- Moderate exercise activity
- Early pregnancy

Medical



Distribution of PCOS in urban and rural population in India
A study conducted in India found that the prevalence of PCOS is higher in urban population than in rural population. The study also found that the prevalence of PCOS is higher in women who are overweight or obese than in women who are not overweight or obese.

Conclusion

PCOS is a common endocrine disorder in women. It is characterized by irregular periods, excess hair growth, weight gain, acne, infertility, and high blood pressure. The prevalence of PCOS is higher in urban population than in rural population. The prevalence of PCOS is higher in women who are overweight or obese than in women who are not overweight or obese.

Acknowledgement

The author would like to thank the following people for their help and support during the preparation of this poster:

References

1. Stein ZD, Lenzwiler J. 1955. A syndrome characterized by amenorrhea and hirsutism. *Obstet Gynecol*. 8:200-204.