INSTITUTE OF PULMOCARE & RESEARCH

DG-8, Near Rabindra Tirtha, Action Area-I,
(On the way to New Town DPS School), New Town, Kolkata-700 156

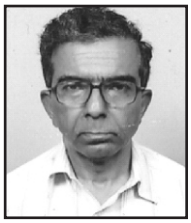
Welcomes

ALL DELEGATES
to
PULMOCON - '19

17th All India Update On Pulmonary Medicine

: CONTENT :

FROM THE PRESIDENT'S DESK



"I am happy to welcome you at Pulmocon 2019. This annual All India update has really become a chosen and admired academic event of our fraternity from different corners of our country.

The organising committee has tried its best to make it a successful event. I would pledge you all to excuse us for shortcomings, if any and enrich us with your suggestions and positive criticisms."

Dr. Dhiman Ganguly
President
Pulmocon - '19

FROM THE SECRETARY'S DESK

"I am happy and honoured to welcome you at Pulmocon '19. This happens to be the 17th Pulmocon in a row – and it gives me pleasure to see that the popularity of the conference has been scaling high and higher over the years.

I welcome all the delegates from across the country and hope that our effort will let you carry home messages to cater better to your ailing patients.

I wish you all continue to bestow with love and affection upon us so that this institute can grow further and the future pulmocons turn better and more meaningful.

With regards and thanks."

Dr. Parthasarathi Bhattacharyya

Dr. Parthasarathi Bhattacharyya
Organising Secretary
Pulmocon - '19

PULMOCON - '19

President :
Dr. Dhiman Ganguly

Organizing Secretary :
Dr. Parthasarathi Bhattacharyya

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Mr. Mintu Paul
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Mr. Rana Dey
Ms. Ratna Dey
Mr. Sahidul Islam
Ms. Sayoni Sengupta
Mr. Sohel Rana Shakh
Mr. Tapas Kumar Basu

Keshari Nath Tripathi
GOVERNOR OF WEST BENGAL

RAJ BHAVAN
KOLKATA 700 062

20th July, 2019

Message

I am glad to learn that the Institute of Pulmocare & Research is going to hold its 17th All India Pulmonary update (Pulmocon 2019) on 14th & 15th September, 2019 and to publish a souvenir to commemorate the occasion.

I am sure that the Institute will continue to work for scientific innovations to develop new procedures in the field of treatment of chronic pulmonary diseases.

I convey my felicitations to all the members of the Institute and wish the programme all success.

K.N. Tripathi

Keshari Nath Tripathi

Telephone No: 2200-1641
Fax No. : 2200-0020

ADDITIONAL CHIEF SECRETARY
TO THE GOVERNOR
WEST BENGAL
Raj Bhavan, Kolkata-700 062
e-mail: secy-gov-wb@nic.in

No. 4004- G Dated : 4/9/19

MESSAGE

Shri Jagdeep Dhankhar, Hon'ble Governor of West Bengal is glad to learn that the Institute of Pulmocare & Research is organizing its 17th All India Pulmonary Update (Pulmocon 2019) on 14th & 15th September, 2019.

The Governor extends his felicitations and best wishes to all those associated with the Institute and congratulates them on the occasion.

S C Tewary
2.9.19
Satish Chandra Tewary

Dr. Parthasarathi Bhattacharyya,
Organizing Secretary,
Pulmocon 2019,
Institute of Pulmocare & Research,
DG-8, Near Rabindra Tirtha,
Action Area-1, New Town,
Kolkata – 700 156.

ডাঃ শম্ভুনাথ দে

জন্ম ঃ ১লা ফ্রেবুয়ারী, ১৯১৫ মৃত্যু ঃ ১৫ই এপ্রিল, ১৯৮৫

বাঙালি চিকিৎসক ও বৈজ্ঞানিক, যাঁর পরিচয় জাতির ইতিহাসে প্রায় বিলুপ্ত

স্যার আলেকজাণ্ডার ফ্লেমিং যেমন পেনিসিলিনের আবিষ্কর্তা, স্যার রোনাণ্ড রস্ যেমন ম্যালেরিয়ায় মশার ভূমিকার আবিষ্কারের জনক, তেমনি **ডাঃ শম্ভু নাথ দে কলেরার বিষ (toxin) এর আবিষ্কর্তা।**

সারা পৃথিবী যখন ফ্লেমিং, রস্ কে শ্রদ্ধা জানায় তখন নীরবে বৈপ্লবিক গবেষণা করা এই বাঙালী তথা ভারতীয় চিকিৎসক লোকচক্ষুর অন্তরালেই থেকে যান।

তাঁর মৃত্যুর ৩৪ তম বর্ষে ও জন্ম শতবর্ষে আমরা তাঁকে বিস্মৃতির অন্তরাল থেকে বাইরে সর্বসমক্ষে আনতে চাই।

তাই ২০১৯ সালে অনুষ্ঠিত আমাদের **পালমোকন - ইনস্টিটিউট অব্ পালমোকেয়ার অ্যাণ্ড রিসার্চ** এর বাৎসরিক বক্ষরোগ সংক্রান্ত সর্বভারতীয় সম্মেলনে আমরা প্রয়াত ডাঃ দে - কে আমাদের আন্তরিক শ্রদ্ধা জানানোর চেষ্টা করেছি। তাঁর নামে আমরা ২০০৯ সাল থেকে একটি বাৎসরিক স্মারক বক্তৃতার সূত্রপাত করেছি। এ বছর ঐ বক্তৃতা দিতে আসছেন ভারত বিখ্যাত বৈজ্ঞানিক ও চিকিৎসক অধ্যাপক ডাঃ কঞ্জাক্ষ ঘোষ।

এক আত্মবিস্মৃত জাতির বর্তমান গ্লানিময় পরিস্থিতির প্রেক্ষাপটে ডাঃ শম্ভুনাথ দে-র উজ্জ্বল জীবনালেখ্য আমাদের চলার প্রেরণা ও পাথেয় হোক। চিকিৎসা বিজ্ঞানে বাঙালীর অবদান আমাদের ও পরবর্ত্তী প্রজন্মকে হারিয়ে যাওয়া সম্মান পুনঃ উদ্ধারে ব্রতী করুক। হীনমন্যতার মলিনতা থেকে বাংলার ও এদেশের চিকিৎসা ব্যবস্থা ঘুরে দাঁড়াক এক নতুন প্রত্যয়ের এবং একনিষ্ঠ প্রচেষ্টার আলোয়।

–ঃ জীবনী ঃ–

১৯১৫ সালে শম্ভুনাথ দে'র জন্ম হুগলীর এক সাধারণ ব্যবসায়ী পরিবারে। ছোটবেলা থেকেই তিনি মেধাবী ছাত্র হিসাবে চিহ্নিত হন - এবং ম্যাট্রিকুলেশনের পর প্রথমে হুগলীর মহসীন কলেজ ও পরে কোলকাতা মেডিকেল কলেজ থেকে ১৯৩৯ সালে MB এবং ১৯৪২ সালে DTM (Diploma in Tropical Medicine) পাস করেন। ১৯৪৭ সাল অবধি কোলকাতা মেডিকেল কলেজে প্যাথোলজি বিভাগে ডেমন্‌স্ট্রেটর হিসাবে কাজ করার পর, তিনি লণ্ডনে PhD করার উদ্দেশ্যে যান। ফিরে আসার পর তিনি কোলকাতা মেডিকেল কলেজের প্যাথোলজি বিভাগে যোগ দেন এবং মূলত কলেরা সংক্রান্ত গবেষণায় মনোনিবেশ করেন।

সে সময়ে কলেরা ছিল একটি মহামারী বিস্তার করা রোগ এবং কলেরা সম্মন্ধে মানুষের জ্ঞান ছিল সীমিত। ১৮৮২-৮৩ সালে রবাট কচ্ (Robert Koch) কলেরার জীবানু আবিষ্কার করেন কিন্তু ঠিক কিভাবে কলেরা হয় তা একটা বিরাট প্রশ্নচিহ্নের মত থেকে যায় – কারন, রবার্ট কক্ এবং তৎপরবর্তী অন্যান্য বৈজ্ঞানিকরা এই রহস্য উদ্‌ঘাটনে ব্যর্থ হন। সাধারণ ব্যাকটেরিয়ারা যে ভাবে মানুষকে আক্রান্ত করে, ঠিক সেই হিসাবে কলেরার আক্রমণ ও রোগ সৃষ্টিকে তারা বুঝতে ও বোঝাতে পারেননি। আসলে কলেরার জীবাণু (vibrio cholerae) রোগ সৃষ্টি করে সম্পূর্ন অন্য উপায়ে - জীবানু নিঃসৃত Toxin বা বিষ অন্ত্রের উপর কাজ করে দাহ্য ঘটায়। অন্ত্রের (ইলিয়াম) এর লুপ মডেলের ব্যবহার করে **ডাঃ দে** দেখান যে কলেরা হয় ঐ বিষ বা Toxin এর জন্য। জীবানু ও তার দেহ নিঃসৃত বিষ যে এভাবে অসুখ সৃষ্টি করতে পারে এ তথ্য প্রতিষ্ঠার জনক হন **ডাঃ শম্ভুনাথ দে** । ১৯৫৯ সালে এই আবিষ্কারের পর, ১৯৬১ সালে তিনি London বিশ্ববিদ্যালয়ের D.Sc. (শরীর বিদ্যা) হন।

পরবর্তী কালে ডাঃ দে নীলরতন সরকার মেডিকেল কলেজ ও বসু বিজ্ঞান মন্দিরেও কাজ করেন। প্রভূত প্রতিকূলতার মধ্যে তাকে কাজ করতে হয়। তাঁর কাজে সাহায্য করা দূরে থাক, পদে পদে তাঁকে হেনস্থা হতে হয়। এক সময় হতাশ হয়ে এবং একরকম বাধ্য হয়ে তিনি গবেষণার কাজ বন্ধ করে দেন। একটা ছোট প্যাথলজি ল্যাবরেটরী করে এই মহান বৈজ্ঞানিককে দিন যাপন করতে হত। **জীবদ্দশায় তাঁর ভাগ্যে কোন সম্মান জোটেনি; 'মহান' এই দেশ তাঁকে কোথাও কোন রকম স্বীকৃতি দেয় নি।**

ডাঃ দের গবেষণার ফলশ্রুতিতে আরও অনেক আবিষ্কার যেমন দাস্থ তে ORS চিকিৎসা, কলেরা-টীকা সমস্তই সম্ভব হয়েছে তার আবিষ্কারের সৌজন্যে। **একাধিক বার তিনি বিদেশ থেকে নোবেল পুরষ্কারের জন্য মনোনীত হন, ১৯৭৮ সালে - তিনি নোবেল কমিটিতে বক্তব্য রাখেন।**

মহান এই বৈজ্ঞানিক **১৯৮৫ সালে লোকান্তরিত হন**। যদিও জীবদ্দশায় তিনি তার নিজের দেশে কোন সম্মান ও স্বীকৃতি পাননি, আমেরিকার ও দেশ বিদেশের গবেষকরা কিন্তু ডাঃ শম্ভুনাথ দে কে দুহাতে সম্মান সূচক অর্ঘ সাজিয়ে দিয়েছেন। তার নামে লেখা অনেক প্রবন্ধ, ছাপা হয়েছে বিদেশী বৈজ্ঞানিক পত্র-পত্রিকায়। যদিও তার মৃত্যুর দশ বছর পর **১৯৯৪ সালে কোলকাতা বিশ্ববিদ্যালয় তাঁকে সম্মানীয় D.Sc. উপাধি দেন।**

ডাঃ দের মৃত্যুর ৩৪ বছর পরে তাঁকে সম্মান জানাতে পেরে আমরা নিজেদের কৃতার্থ বলে মনে করছি। আমাদের এই ছোট্ট প্রতিষ্ঠান এই সম্মান প্রদর্শনের মধ্য দিয়ে গভীর ভাবে প্রেরণা অনুভব করছে।

হয়ত বহুশ্রুত নাটকের এই উক্তিই সত্যি - "**সত্য সেলুকাস্, কি বিচিত্র এই দেশ** !"। জাত-পাত, ধর্ম-গোষ্ঠী, রাজনীতির সদা সংকীর্নতা, মানসিক ও আত্মিক দীনতার, আত্মবিশ্বাস হীনতার অন্ধকারে এমনি হারিয়ে যান কত জ্যোতিষ্ক। মৃত্যুর ৩৩ বছর পরও আমরা তাকে কোন মরনোত্তর সম্মান দিতে পারিনি – রাজপথ দূরে থাক, একটা কানা গলি, কি একটা শিক্ষা প্রতিষ্ঠানে কোথাও তাঁর নাম নেই।

আমরা আশা করবো ডাঃ শম্ভুনাথ দে কে আমাদের সমাজ ও সরকার উপযুক্ত মূল্যায়ন করবেন এবং তার মাধ্যমে বাংলা তথা ভারতবর্ষের চিকিৎসা জগৎ - এ গভীর ও সুস্থায়ী পরিবর্তনের সূচনা হবে।

Dr. Sambhu Nath De

Born : 1st February, 1915 **Passed away : 15th April, 1985**

A great doctor and scientist from Bengal – who is forgotten in our national history.

Dr. Sambhu Nath De can be placed in the same row with Dr. Alexzander Flamings (the inventor of penicillin) and Sir Ronald Ross (the inventor of the role of mosquito in malaria). Dr. De discovered that toxins secreted from the cholera germ causes loose motion and this fact changed the face of treatment of diarrhoeal diseases. But Dr. De remains in oblivion when the world pays tribute to the other two and many more.

We wished to bring his name to light in his birth Centenary and after 34 years of his passing away. So, we initiated a memorial oration in his name in our annual update from 2009 onward. This year, Dr. Kanjaksha Ghosh will deliver the oration.

Let the life and work of Dr. Sambhu Nath De inspire us and make us stride to bring glory and confidence to our efforts in healthcare and research.

ABOUT DR. SAMBHUNATH DE

EARLY CAREER

Sambhu Nath De was born in Hooghly District, West Bengal, India. His father Mr Dasarathi De was a small businessman. Supported by his uncle Asutosh De, De completed the Matriculation examination with distinction that helped him to get the District scholarship as well as to pursue further education in Hooghly Mohsin College. De passed his M.B. examination in 1939 from Calcutta Medical College and completed a Diploma in Tropical Medicine (DTM) in 1942. Soon after graduation he joined Calcutta Medical College as a Demonstrator of Pathology. In 1947, De joined as a Ph.D. student under Sir Roy Cameron at the Department of Morbid Anatomy, University College Hospital Medical School, London, and obtained his Ph.D. degree in Pathology in 1949. After his return, De worked on pathogenesis of cholera and started publishing his findings. In 1955, De became the Head of Pathology and Bacteriology Division of the Calcutta Medical College, which he continued until his retirement.

CONTRIBUTIONS

De made significant contributions to our recent understanding of cholera and related diarrheal diseases. Followed by the discovery of Vibrio cholerae in 1884 by Robert Koch, many works have been carried out all over the world to answer many questions related with its pathogenesis and mode of transmission in causing outbreaks. Three of his works viz., ligated intestinal loop method for studying cholera in rabbit model; ileal loop model to demonstrate the association of some strains of E. coli with diarrhea and lastly but most importantly is his discovery of cholera toxin in 1959 in the cell-free culture filtrate of V. cholerae that stimulated a specific cellular response.

In 1959 De was the first to demonstrate that cholera bacteria secrete enterotoxin. This discovery eventually promoted research to find a treatment aimed directly at neutralizing the cholera enterotoxin. De's paper "Enterotoxicity of bacteria-free culture-filtrate of Vibrio cholerae," while initially unrecognized, today is considered a milestone in the history of cholera research. Biochemist W.E. van Heyningen, professor emeritus, University of Oxford, UK, and John R. Seal, former scientific director, National Institute of Allergy and Infectious Diseases, Bethesda, note that De's paper "deserves to go down as a classic in the history of cholera, and, indeed, as later developments have shown, in the history of cellular physiology and biochemistry."

"An experimental study of the mechanism of action of Vibrio cholerae on the intestinal mucous membrane" is De's most-cited paper, cited 340 times until August 1986. De's most-cited paper has been core to cholera research fronts for many years, especially research fronts on "E. coli and Vibrio cholerae enterotoxin: detection, characterization, and role of adherence" and "Characterization of cholera enterotoxin and other enterotoxins". As noted by John Craig, State University of New York Health Science Center at Brooklyn, De's work was truly creative and novel, and it "forever altered our concepts surrounding the pathogenesis of secretory diarrhoea."

These famous findings came out from the work he carried out at the Nilratan Sircar Medical College, Calcutta Medical College and Bose Institute, Kolkata in extremely modest laboratory settings. Using research methodology that was very simple, easy to perform and inexpensive, he set the highest standards of excellence in novel experimental design and execution.

The oral rehydration therapy (ORT) for replenishing the massive fluid loss in cholera patients, has saved innumerable lives, should be considered as a direct outcome of De's discovery of cholera toxin. His findings on exotoxins set the stage for the modern views of diseases caused by toxin producing bacteria, helped in the purification of cholera and heat-labile (LT) enterotoxins produced by V. cholerae and E. coli, respectively, and in the development of series of cholera and enterotoxigenic E. coli (in short ETEC strains) vaccines.

POST-RETIREMENT

De retired in 1973 from the Calcutta Medical College at the age of 58. After his retirement, he showed no interest in higher positions but continued his research at the Bose Institute, Calcutta. De's desire to purify the cholera toxin did not progress any further as the protein purification technology was not well established in his research settings. In 1978, the Nobel Foundation invited De to participate in the 43rd Nobel Symposium on Cholera and Related Diarrhoeas.

De died on April 15, 1985 at the age of 70. His life's ambition was to make the world a better place to live in through his dedicated selfless services in medical science.

Nobel laureate Prof. Joshua Lederberg had nominated De for the Nobel Prize more than once. Said Lederberg, **"our appreciation of De must then extend beyond the humanitarian consequences of his discovery. . . he is also an examplar and inspiration for a boldness of challenge to the established wisdom, a style of thought that should be more aggressively taught by example as well as precept."**

And yet De was never elected a fellow of any Indian academy and never received any major award. Indeed as Professor Padmanabhan Balaram pointed out in an editorial in Current Science, "De died in 1985 unhonoured and unsung in India's scientific circles. That De received no major award in India during his lifetime and our Academies did not see it fit to elect him to their Fellowships must rank as one of the most glaring omissions of our time. De's heroic story of persistence, dedication and achievement should serve as an inspiration to the many who are increasingly bewildered by the current fashion of mega projects, surrounded by fanfare and publicity and most often surprisingly little discernible scientific output."

Retrieved from "http://en.wikipedia.org/wiki/Sambhu_Nath_De"

A TRIBUTE TO THE MEMORY OF DR. SAMBHUNATH DE

Prof. A. K. Nandy

Dr. Sambhunath De worked and died in this city of Calcutta (now Kolkata), and it was in this city that he discovered the Cholera Enterotoxin - fifty years back in 1959, which as Prof. Van Heyningan of the University of Oxford, noted "deserves to go down as a classic in the history of cholera and, indeed as later developments have shown, in the history of cellular physiology and biochemistry".

This great scientist, though recognised internationally, and by the Nobel Commitee itself for his great work, remained almost unknown and neglected in his own country, in his own State, and even the city he worked in. No wonder then, when Professor P. Balaram in an Editorial in the 'Current Science' journal, wrote "De died in 1985 unhonoured and unsung in India's scientific circles", ... must rank as one of the most glaring omissions of our time. De emerges in retrospect as a moment self-effacing scientist driven by inner compulsions to grapple with a major scientific problem of the time. "De's heroic story of persistence, dedication and achievements should serve as an inspiration to many who are increasingly bewildered by the current fashion of megaprojects - surrounded by fanfare and publicity and most often, surprisingly little discernible scientific output".

Research work of Dr. S. N. De

His work on cholera started when he was the Professor of Pathology in N.R.S. Medical College. His paper published during this period in 1953 has been his most cited paper, cited 340 times until August 1986 and has been designated as a 'Citation Classic' in 1987, indeed a very rare recognition. He continued his work in Calcutta Medical College where he joined as the Director-Professor of Pathology in 1956 and also as a 'Honorary Worker' in the Bose Institute. His work started getting keen attention from the international scientific community, as was exemplified from the words of Dr. John Craig of the State University of New York : "De's work was truly creative and novel, and forever altered our concepts surrounding the pathogenesis of secretory diarrhoea".

By 1960, De established the existence of "CHOLERA EXOTOXIN". In his own words "Vibrio Cholerae has now been promoted to the rank of few exotoxin-producing bacteria. Diphtheria exotoxin was discovered within 4 years of discovery of the bacillus, Tetanus exotoxin within 6 years. It has taken 75 years for cholera exotoxin to be discovered in 1959, after organism was discovered by Robert Koch in 1884" (B.C.Roy Oration).

De wanted to continue with his research for further purification of the toxin ultimately develop that he discovered, and ultimately develop a vaccine against cholera. But, unfortunately various constrains and lack of support for necessary facilities forced him to limit himself. He stated - "by 1963-64, I was forced to discontinue my work and lost all interest in cholera" (B.C.Roy Oration).

But his unfinished work was picked up by scientists abroad in few years' time, when they noted its implications. Extensive work was started on the foundation laid by De; its wider applications in a variety of investigations were also worked out in the proceding years. Applause started reaching him from all corners of the world except his own country. Noble Laureate Professor Joshua Lederberg noted, " ... his findings on exotoxins set the stage for modern views of diseases caused by the toxin-producing bacteria, ... helped in purification of the cholera and E.Coli enterotoxins, ... and in the development of cholera and E.Coli vaccines". He had nominated De for the Nobel Prize more than once.

The Nobel Foundation invited De in 1978 to participate in the 43rd Noble Symposium on "Cholera and Related Diarrhoes". He was highly applauded there by all present there (see letter). Noble Prize seened to be a possibility. But Lady Luck disappointed hid this time also.

He died a brooken-hearted man on April 15, 1985 from Hepatitis-B infection followed by hepatic coma.

The Indian scientific community woke up from its 'Kumbha-Karna Sleep' at long last "Current Science", the pioneer Indian scientific journal brought out a "Special issue on S.N.De and cholera Enterotoxin" in 1990 with contributors from all over the world. This was for the first time the prestigeous journal brought out a special issue on a particular scientist.

IBM Nordic Education Center
FACK 181 20 LIDINGÖ

10th May 1971

My dear Archiji

The lecture is over. What a relief! - Congratulated by at least three people as the best lecture in the symposium — all slimmed - no questioning. In the workshop - I am keeping silent.

But I do not think this means any thing more. However enjoying good and nice holiday under fine environment and under all conveniences with the letter free ~~Tuesday~~ This afternoon - five tone / Tomorrow afternoon - back - day after tomorrow - Calcutta. 23rd BA 021 London রেখে যাবে।

Tuka came to Heathrow — he did not get my letter. Good care in his house. Little Arishen became very friendly - So has Diana. Dilip Dipali 3 [illegible] - [illegible] - [illegible] chance [illegible] Tuka and Dilip - both changed my shabby dress! - Tuka sent a Monk, Dilip a suit — all advise me to enjoy life!

Hope Ivory is O.K.

Love

IBM

A letter of Dr. Sambhu Nath De to his son-in-law: to display his handwriting

Prof. S N Dey Memorial Oration: 2019

Orator: Dr. Kanjaksha Ghosh

MBBS (Hon), MD (Med), DNB (haem),
MNAMS (path),MRCPI, MRCP (UK),
MRCPath (Lond), FRCP (Glasg), FRCPath,
FAMS, FACP, FNASc, FICP, FISHTM.

Retired as head of
ICMR Institute of Haematology KEM Mumbai.

PULMOCON '19

14th and 15th September 2019

Venue : CII-Suresh Neotia Centre, City Centre, Sector-I, Salt Lake, Kolkata-64

Organised by : **Institute of Pulmocare & Research,** Kolkata.

Acharya Prafulla Chandra Roy Memorial Award, 2019

Bengal has given birth to many great people – Acharya Prafulla Chandra Roy had been one amongst them.

Acharya P C Roy dreamt of self reliance and promotion of self sufficiency in all fields through gaining excellence. The great scientist of his days was a great entrepreneur too. He established Bengal Chemical, the 1st Indian entrepreneurship in Chemical and Pharmaceutical industry over 103 years ago. That was, infact, the beginning of pharmaceuticals industry in India.

The beauty of his personality was in simple living but in extraordinarily thinking, in noble ambitions and the ability to withstand odds. They were admixed with a generosity and extreme love and affection for his students and the countrymen. A story goes as that once he was very angry with a student who spent one penny extra for his professors tiffin but on the same day of the incidence, the apparently miger professor donated ` 50,000/- to the National Congress Party for draught-relief in North India.

To commemorate him and to instill the sprit of innovations amongst ourselves we have incorporated an award in our annual Pulmocon from the year, 2009. The 1st Acharya P C Roy memorial award was offered to Dr. Sujay Guha and the next was confered to famous scientist and innovator Dr. Tinku Acharyya who innovated the digital photography technology with over 150 US patents to his credit. In 2011 we had felicitated Prof. Indu Bhusan Chatterjee for his distinguished contribution in research and innovations in 2012, similarly, in subsequent years doyens in research and innovations have been conferred with this award. In Pulmocon 2019 we are happy to award Prof. Atanu Basu.

Dr. Atanu Basu is presently working as a Scientist G position, he is also acclaimed as the Division Head, Electron Microscopy & Pathology, Virus Collection & Bio-banking Program. He is also an Adjunct Professor in School of Basic Sciences, Indian Institute of Technology, (IIT), Mandi. Dr. Basu obtained his Masters in Science (Biophysics and Molecular Biology) from University of Calcutta and PhD in Chemistry from Pune University. He also garnered his post-doctoral award from National Institute of Health, Bethesda MD, USA. Dr. Basu has several rich years of research experience in several fields. Initially he worked as a research student from Calcutta University, for the molecular characterization of RecA proteins in E. Coli. He then worked under several domains in research and development since 1990- 20000. The prominent being: Development of prokaryotic expression vectors, as a Senior Research Fellow (ICMR).He has a number of awards to his credit.

Case - 1

Presenter: **Dr. M L Gupta**

Real world approach: Tuberculosis – treatment of drug sensitive and resistant TB

The Case:

A 28 year old married lady presented with cough, fever, chest pain, and occasional scanty hemoptysis for last 6 weeks. She also had a weight loss of 4 kilograms during this period.

The story leads to a chain of rational and evidence based actions by the physician concerned. But the real story begins with her treatment with anti-tubercular drugs. The case elaborates the difficulties in treating tuberculosis in real life.

Please engage with Professor M L Gupta in the treatment of the patient.

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Case - 2

Presenter: **Dr. S K Todi**

Real world approach: Critical Care

The Case:

A 55 year old lady with diabetes (Type 2) and hypertension presented with abdominal discomfort, vomiting and two episodes of loose motion with decreased urinary output. She also had low grade fever. She was treated with IV metronidazole and ofloxacin. She however, developed chest discomfort, shortness of breath, and hypotension and landed up in an ICU.

The story begins here and Dr Subhas Todi will take you to the developments and the approach to them in this patient. The real life questions will make you carry important messages to home.

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Case - 3

Presenter: **Dr. M K Sen**

Real World Approach: Sleep

The Case:

A 75 years old man, heavy ex-smoker and alcoholic presented with progressive SOB for 2 years, pulse oximetry showed barely 80% saturation in the room air. Chest X-ray showed bilateral pleural effusion and cardiomegaly.

Please join the journey of exploration of the problem and finally settling to some tangible answers. The case opens up a new vista of thinking in such a situation.

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Case - 4

Presenter: **Dr. Dharmesh Patel**

Real world approach: Plural diseases

The Case:

A 29 year old leady came with history of progressive enlargement of breast and shortness of breath. She is a known hypothyroid with history of convulsion in recent past. Anticonvulsant prescribed to her were stopped for skin reaction. She also had dry cough and back pain for 6 months. She had a soreness of month for which she was given a prohibited list of drugs with a diagnosis of SJ syndrome recently.

She was found to have bilateral exudative pleural effusion with increased TSH that was subsequently drained. A clinical review yielded a left auxiliary lymph node enlargement which was excised and histopathology report suggested granuloma – which on Rx did not respond. It showed no growth subsequently on AFB culture.

She was put on anti TB drugs.

Meanwhile, she had a spell of hypoxemia, and she was admitted. A venous doppler revealed DVT in the Rt lower limb veins

It remained a riddle for some time to find the root cause of their illness but it was ultimately discovered.

Enjoy the interesting journey of investigations with Dr. Dharmesh Patel.

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Case - 5

Presenter: **Dr. Bibhas Biswas**

Real world approach : Lung cancer

The Case:

46 years old lady with history of hypertension and hypothyroidism presented with cough and occasional mild haemoptysis in October '14.

Chest X-ray revealed a parahilar spiculated lung opacity. Bronchoscopy showed oedematous endobronchial growth in right upper lobe bronchus.

The journey of a pulmonologist and an oncologist start from here.

Dr. Bibhas Biswas steers the next part of the story touching the key area as

a) The diagnosis of lung cancer
b) The role of staging in treatment
c) The role of immunohistochemistry in treatment decision
d) The art of following up such a patient in modern day medicine.
e) The best possible precision therapy for treatment and retreatment at unresponsiveness / relapse with other similar relevant issues.

Wish you all enjoy the journey and share the thrill and joy with the speaker.

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Case - 6

Presenter: **Dr. Sushmita RoyChowdhury**

Real world approach: Viral infection of lungs

Viral infection:

We have a very poor perception about the presentation and course of different viral pneumonias. Recently with the advent of molecular diagnostic methods, it has become possible to identify the causative virus in several such cases been admitted in ICU.

Dr. Sushmita Roychowdhury will present a few such cases with a room for interactions.

Notes:

Case - 7

Presenter: **Dr. Parthasarathi Bhattacharyya**

Real world approach: DPLD

DPLD:

This topic is approached through presentation of interesting cases by Dr. Parthasarathi Bhattacharyya from his personal archive. He tries to move towards a kind of personalized therapy for DPLD towards the end.

Join the algorithmic approach that suits our soil with Dr. Bhattacharyya through questions and answers.

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Case - 8

Presenter: **Dr. P A Mahesh**

Real world approach: Adult respiratory allergy and asthma

Adult respiratory allergy and asthma

A 40-year-old female presented to the OPD with recurrent episodes of cough, wheeze, dyspnea, chest tightness, mucoid sputum and nasal blockage. The symptoms are worst in the night and early morning and gets better after 10 am. She has sneezing for an hour after waking. She was symptomatic for the last ten years, worst in winter and near normal in summer. In winter, her episodes troubled her on most days of a month disturbing her daily activities and sleep. She had a strong family history of allergic rhinitis and asthma with 4/6 siblings and mother suffering from asthma. Ten years ago, she suffered from symptoms once or twice a year on cleaning old dust which lasted for a day and responded spontaneously on avoidance of dust.

After three years, her frequency of attacks increased and all of them needed treatment to resolve and lasted a week. From the last five years, she used Fluticasone and Salmeterol intermittently when needed for 5-7 days. Since three years, regardless of season, she has daily symptoms and she reports using Budesonide and Formoterol frequently and salbutamol as rescue many times in a day. No one smokes in her house.

In spite of her frequent use of medications, she continues to have symptoms in most days of the month and significant activity limitation. She has been referred to you for further evaluation…

The story leads to a series of questions and evaluations.

Please join the journey with Dr. P A Mahesh.

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Case - 9

Presenter: **Dr. Uday Chowdhury**

Real world approach: Treating the mind in clinical practice (common psychiatric issues)

Notes:

Case - 10

Presenter: **Dr. Sitesh Roy**

Real world approach: Pediatric respiratory allergy and asthma

Notes:

Case - 11

Presenter: **Dr. S K Chhabra**

Real world approach: COPD beyond Bronchodialators

Notes:

Case - 12

Presenter: **Dr. Raja Dhar**

Real world approach: Bronchiactasis

Notes:

PULMOCON - '19

Date: 14th and 15th September, 2019

Theme: Pulmonary diseases: How does the expert act?

PROGRAMME SCHEDULE (Hall - A)

DAY 1 : 14th September, 2019

Time	Topic	Speaker	Moderator / Chairperson
09.30 am	Welcome address	Dr. Parthasarathi Bhattacharyya	
09:35 am -10:00 am	Pollution and Lung Health	Dr. Susmita Kundu	Dr. Somnath Bhattacharyya
10:00 am - 10:45 am 10:45 am - 11:30 am	**Real world approach:** • Viral Infection of lungs • Treating the mind in clinical practice *(common psychiatric issues)*	Dr. Sushmita Roychowdhury Dr. Uday Chowdhury	Dr. Indranil Haldar Dr. Dhiman Ganguly
11: 30 am – 11:45 am	**Tea Break**		
11:45 am – 12:30 pm 12:30 pm – 01:15 pm	**Real world approach** *(Session 2)* **:** • Plural diseases: • DP LD	Dr. Dharmesh Patel Dr. Ranjan Das Dr. Parthasarathi Bhattacharyya	Dr. Ashok Sengupta Dr. Shelly Shamim Dr. Deependra Rai Dr. Saibal Ghosh
01:15 pm – 02:00 pm	Interacting session with experts: Medical Ethics in day to day life	Dr. Dhiman Ganguly, Dr.Krishnendu Mukherjee, and Dr. Sitesh Dasgupta	
02:00 pm – 02:50 pm	**Lunch Break**		
02:50 pm – 03:40 pm	**National Pulmo Quiz** *(Elimination round)*	Quiz Master: Dr. Sushmita Roychowdhury	Assist: Dr. Arindam Mukherjee Dr. S. Unnithan
03:40 pm – 04:30 pm	**Critical Care:** Real world approach	Dr. S K Todi	Dr. Ajoy Sarkar
04:30 pm – 04:45 pm	**Tea Break**		
04:45pm – 05:25 pm	**Real world approach:** Lung cancer	Dr. Bibhas Biswas	Dr. Sourabh Maji Dr. Saket Sharma
05:25 pm – 05:55 pm	Bio-safety concerns to a physician / pulmonologist	Dr. Atanu Basu	Dr. Parthasarathi Bhattacharyya
06:00 pm – 07:30 pm	**The Dr. S N De Memorial Oration:** **The Award giving ceremony: The Acharya P C Roy award will be conferred upon** **The Inauguration program**		Dr. Kanjaksha Ghosh Dr. Atanu Basu Dr. Debasish Bhattacharyya Dr. Dhiman Ganguly Dr. Parthasarathi Bhattacharyya
08:00 pm – 08:30 pm	**Dinner with cultural program**		

DAY 1 (Hall - B)

Time	Topic	Speaker	Moderator / Chairperson
10.15 am to 02.15 pm	**Workshop:** ECG for pulmonologist		Dr. Rabin Chakraborty
02:15 pm – 03:00 pm	**Lunch Break**		
03:00 pm to 05:00 pm	**Respiratory support: My understanding**		
	a) Non respiratory interventions in respiratory diseases (20+10 minutes)	Dr. Debabani Biswas	Dr. Subhasish Chakraborty Dr. Deependra Rai
	b) Conventional Oxygen therapy (20+10 minutes)	Dr. Anirban Sarkar	
	c) NIV: in day to day practice (20+10 minutes)	Dr. Ajoy Sarkar	
	d) High frequency nasal oxygen delivery (20+10 minutes)	Dr. Subhasish Ghosh	
05:15 pm to 06:00 pm	Preparation of poster presentation for day 2		

PROGRAMME SCHEDULE (Hall - A)

DAY 2 : 15th September, 2019

Time	Topic	Faculty	Chairperson
10:00 am – 10.30 am	Bronchiolar disease: my understanding	Dr. S K Chhabra	Dr. Tiyas Sen
10.30 am to 11.10 am	**Real world approach:** ● **Tuberculosis:** treatment of drug sensitive and resistant TB	Prof. M L Gupta Dr. Supriyo Sarkar	Dr. Ansuman Mukherjee Dr. M R Pattanayak
11:10 am – 11:20 am	**Tea Break**		
11:20 am – 12:10 pm	National Pulmo-Quiz *(Final round)*	Quiz Master: Dr. Sushmita Roychowdhury	Assist: Dr. Arindam Mukherjee Dr. S. Unnithan
12:10 pm – 12:50 pm 12:50 pm – 01:30 pm	**Real world approach: Asthma / Allergy:** ● Adult respiratory allergy and asthma ● Pediatric respiratory allergy and asthma	Dr. P A Mahesh Dr. Sitesh Roy	Dr. Saibal Maitra Dr. Banani Jena
01:30 pm – 02:00 pm	"Igniting innovation in young minds"	Dr. Atanu Basu	Dr. Rupak Ghosh Dr. Dhiman Ganguly
02:00 pm – 02:50 pm	**Lunch Break**		
02:50 pm – 03:30 pm	**Real world approach:** **COPD:** COPD beyond Bronchodialators	Dr. S K Chhabra Dr. Pawan Agarwal	Dr. AG Ghoshal Dr. Sourin Bhuniya
03:30 pm – 04:15 pm	**Real world approach:** ● **Sleep**	Dr. Manas Kamal Sen	Dr. Arup Halder Dr. Saikat Nag
04:15 pm – 04:30 pm	**Tea Break**		
04:30 pm – 04:35 pm	QUIZ and RESEARCH (POSTER) award and Valedictory session		

DAY 2 (Hall - B)

10:30 am - 01:00 pm	Poster and platform presentation		**Judge:** Dr. Rupak Ghosh Dr. Somnath Mitra Dr. Indranil Halder Dr. Arunava Dutta Chowdhury Dr. Saket Sharma
01:00 am - 01:45 pm	**Real world approach:** Bronchiactasis	Dr. Raja Dhar	Dr. Sumit Sengupta Dr. Saket Sharma
1:45 pm - 02:30 pm	**Lunch break**		
02:30 am - 04:10 pm *(20 minutes each)*	**Basics science for clinicians:**		**Convener :** Dr. Koel Chowdhury
	Genetics and epigenetics in COPD	Dr. Netai Bhattacharyya	Dr. Bhaswati Pandit
	Understanding statistical interpretation in a scientific manuscript	Dr. Angira Dasgupta	Dr. Sankar Saha
	Lung microbiome	Dr. Parthasarathi Bhattacharyya	Dr. Somnath Mitra
	Immunohistochemistry: its role in understanding diseases	Dr. Sudipto Roy	Dr. Arunava Dutta - Chowdhury
	Future of anti microbial treatment	Dr. Ritabrata Mitra	Dr. Sujan Bardhan
4:10 pm – 04:20 pm	**Tea break**		

ABSTRACT

Airway metastasis of squamous cell lung carcinoma: A rare presentation

Paresh Chandra Mohanta, Manoranjan Pattnaik, Thitta Mohanty, Jeetendra Kumar Patra, Nrusingha Chandra Dash

Department of Pulmonary Medicine, SCB MEDICAL COLLEGE, CUTTACK

Airway metastasis from primary lung carcinoma is rare and typically associated with non-small cell histology. While squamous cell lung cancer is a particularly form of cancer,few cases of endotracheal or endobronchial metastasis have been reported. Airway involvement can go undetected because of the spread along the perilymphatic drainage system with mostly submucosal involvement causing significant airway compromise before onset of symptoms. We present a patient with squamous cell lung cancer, presenting with fever, cough, hemoptysis and dyspnea as a result of metastasis to the trachea and right bronchi without significant mediastinal or hilar lymphadenopathy. We discuss the related literature, as well as the suspected pathophysiology causing this unique presentation.

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Role of CBNAAT in Extrapulmonary Tuberculosis-An ongoing pilot study.

H. Alwani[1], S. Subhankar[2], C. M. Rao[2], D. P. Dash[3]

[1]PG Resident, [2]Assistant Professor,[3]Professor, Kalinga Institute of Medical Sciences - Bhubaneswar (Odisha)

There is a paucity of data from clinical trials in extrapulmonary tuberculosis(EPTB) and most of theinformation regarding diagnosis and management is extrapolated from pulmonary TB.The Xpert MTB/RIFassay or Cartridge Based Nucleic Acid Amplification Test(CBNAAT) is a semi-automated, molecularassay,which permits rapid TB diagnosis through detection of the DNA of Mycobacterium tuberculosis.Wethrough our study wanted to highlight the role of CBNAAT in the rapid diagnosis of EPTB.We admitted all cases with suspected EPTB during the period September,2017 to June,2019. Specificsamples were collected from the patients and were carried to Regional Medical Research Centre (ICMR)through cold chain where they were processed and taken up for CBNAAT and culture in Lowenstein-Jensen(L-J) media.Appropriate samples were sent to our RNTCP laboratory for AFB smearexamination.We compared the accuracy of CBNAAT in relation to L-Jculture and clinical diagnosis.

We examined 335 samples during the period. Lymph node aspirate was the most common sample (32.53) collected followed by pleural fluid (29.25%).The overall sensitivity and specificity of CBNAAT was determined to be 26.46%(95% CI 20.79%-32.76%) and100%(95% CI 96.76%-100%).The low sensitivity could be dueto the low sample size and majority of the sample being serous fluids.The sensitivity and specificity ofCBNAAT in relation to mycobacterial culture,however, was 78.79%(95% CI 61.09%-91.02%) and 89.07%(95% CI 85%-92.36%) respectively.

The sensitivity and specificity of CBNAAT was at par in comparison to mycobacterial culture.However, bothwere highest for pus, CSF and lymph node aspirate samples and may be recommended in initial diagnosis inthese cases.

Identification of prognostic predictors in hypersensitivity pneumonitis and sarcoidosis

Dasgupta S[1], Saha S[1], Pal M[2], Choudhury K[1], Bhattacharya P[2]

[1] School of Medical Science and Technology,
Indian Institute of Technology Kharagpur, Kharagpur, India
[2] Institute of Pulmocare and Research, Kolkata, India

Background:
Diffuse parenchymal lung disease (DPLD) comprises an array of heterogeneous parenchymal lung disorders with common pathophysiological denominations as inflammation or fibrosis or more commonly, both. Incidentally, ~55% of the Indian DPLD population comprises of hypersensitivity pneumonitis (HP) and sarcoidosis.

Objective:
The objective of the present study is to examine the prognostic predictors of HP and sarcoidosis in the Indian patient population

Methods:
HP (n=85) from exposure to avian or aspergillus antigen was diagnosed when the high resolution computerized tomography (HRCT) showed features for HP and was supported by the history of exposure of exposure, the presence of precipitin antibodies (IgG) with negative rheumatoid factor, antinuclear antibody, and no clinical clue for a collagen vascular disease. Sarcoidosis (n=82) was diagnosed when patients reported with compatible clinical and radiologic findings with pathologic evidence of noncaseating granulomas.The presence of various HRCT patterns including (i) peripheral predominance (ii)ground-glass opacity (iii) mosaic (iv) reticular (v) honeycombing (vi) traction bronchiectasis (vii) perilymphatic nodules and (viii) air cyst was evaluated and scored on a Likert scale (0-5 scale).Disease progression was defined as decrease in forced vital capacity (FVC).Kaplan-Meier survival curves were constructed and survival of HP and sarcoidosis patients wascompared.

Results:
Ten years of follow-up indicated 15 and 11 deaths of patients with HP and sarcoidosis, respectively. The mean survivals of these patients were 3.8 years for HP and 6.05 years for sarcoidosis. The mortality rate of HP was found to be 1.38 times higher than that of sarcoidosis. HP patients with honeycombing (r=-0.885, p=0.03), air cyst (r=-0.775, p=0.02) and traction bronchiectasis (r=-0.785, p=0.04) denotes worsening of FVC. In case of sarcoidosis, perilymphatic nodule (r=-0.764, p=0.02) and reticular (r=-0.712, p=0.04) pattern were predictor of decline in FVC.

Conclusion:
Our findings suggest that survival of patients with sarcoidosis is superior to that of HP. Lung function deterioration is associated particularly with those HP patients with honeycombing, air cyst and traction bronchiectasis andsarcoidosis patients with perilymphatic nodule and reticular pattern.

Exploring the pathophysiology of COPD associated PH: a1H NMR based study

[1]Choudhury P, [1] Ghosh N, [2]Sengupta S, [1]Chaudhury K, [2]Bhattacharyya P

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[2] Institute of Pulmocare and Research, Kolkata, India

Group III pulmonary hypertension (PH), considered to be a delayed complication of hypoxic lung diseases has a major burden of chronic obstructive pulmonary disease (COPD). COPD associated PH (COPD-PH) often gets overshadowed by the symptoms of COPD and is associated with shorter survival and worse clinical outcomes. Understanding of the etiopathogenic mechanisms responsible for PH development in COPD remains incomplete. In this study, we hypothesize that 1H nuclear magnetic resonance (NMR) based metabolomics will provide an insight into the pathophysiology of COPD-PH and will also be able to differentiate it from COPD alone at a metabolic level. Two biofluids serum and exhaled breath condensate (EBC) are explored in the present study. Paired serum and EBC samples were collected from patients with pure COPD (n=47), COPD-PH (n=31) and healthy controls (n=39). NMR spectra of the samples were acquired using 800 MHz BrukerAvance III spectrometer equipped with a cryoprobe and the data subjected to univariate and multivariate analysis. On comparing COPD-PH with COPD and controls, distinct metabolic differentiation was observed between the groups. The OPLS-DA models generated for COPD-PH vs. COPD showed good R2 and Q2 values [(a) Serum: R2Y (0.902) and Q2 (0.755) (b) EBC: R2Y (0.861) and Q2 (0.675)] indicating the robustness of the model. The identified metabolites were found to be majorly associated with glycolysis pathway, amino acid and lipid metabolism. The distinct metabolic signatures suggest that the two study groups are distinguishable from each other and also give us a preliminary idea about the pathophysiology of the disease.

Keywords: pulmonary hypertension, COPD, EBC, serum

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Metabolomic signatures of asthma-COPD overlap (ACO) are diferent from asthma and COPD

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Introduction:
Asthma-chronic obstructive pulmonary disease (COPD) overlap, termed as ACO, is a complex heterogeneous disease without any clear diagnostic or therapeutic guidelines. The pathophysiology of the disease, its characteristic features, and existence as a unique disease entity remains unclear. Individuals with ACO have a faster lung function decline, more frequent exacerbations, and worse quality of life than those with COPD or asthma alone.

Objectives:
The present study aims to determine whether ACO has a distinct metabolic profile in comparison to asthma and COPD.

Methods:
Two different groups of patients were recruited as discovery (D) and validation (V) cohorts. Serum samples obtained from moderate and severe asthma patients diagnosed as per GINA guidelines [n□=□34(D); n□=□32(V)], moderate and severe COPD cases identified by GOLD guidelines [n□=□30(D); 32(V)], ACO patients diagnosed by joint GOLD and GINA guidelines [n□=□35(D); 40(V)] and healthy controls [n□=□33(D)] were characterized using nuclear magnetic resonance (NMR) spectrometry.

Results:
Multivariate and univariate analysis indicated that 12 metabolites [lipid, isoleucine, N-acetylglycoproteins (NAG), valine, glutamate, citric acid, glucose, L-leucine, lysine, asparagine, phenylalanine and histidine] were dysregulated in ACO patients when compared with both asthma and COPD. These metabolites were further validated in a fresh cohort of patients, which again exhibited a similar expression pattern.

Conclusions:
Our findings suggest that ACO has an enhanced energy and metabolic burden associated with it as compared to asthma and COPD. It is anticipated that our results will stimulate researchers to further explore ACO and unravel the pathophysiological complexities associated with the disease.

Keywords:
NMR, Metabolomics, Asthma-COPD overlap, Serum, Biomarkers.

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Automatic respiratory cycle extraction using Respiratory Frequency (RF) based smoothing of normal and abnormal lung sound signal

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Background:
Lung sound signal is repetition of lung sound cycles consisting of sequential inspiration and expiration that can carry adventitious markers of underlying disease. The computerized lung sound analysis requires automatic respiratory cycle extraction as a key preprocessing block. The conventional non-acoustic methods suffer from unavailability of skilled operators, whereas the recent acoustic techniques require pre-requisite knowledge which is hindrance to real-time application. This study is an attempt to automatically extract lung sound cycles from lung sound itself without using any auxiliary input.

Methods:
In this work, a total of 122 (32 normal, 48 asthma, 27 COPD, and 15 DPLD) subjects' lung sound signals (LSS) were acquired from four different positions over chest and back using a 4-channel data acquisition system. At first, the envelopes of the preprocessed LSS were computed using Hilbert transform (HT) technique. Next, a sample by sample similarity was measured using the envelopes to estimate subject-wise lung sound cycle (LSC) duration (CD) which is inversely proportional to subject's respiratory frequency (RF). The noisy

envelopes were smoothed using lowpass filters having cut-off-frequencies equal to respective RFs. The onset and offset points of LSCs were identified depending on their peak-valley locations.

Results:
The performances were measured by calculating accuracy (ACC) and correlation coefficient (CC) between the extracted cycles and their corresponding ground truths for each of the four channels independently and altogether. The mean ACC in single channel based approach are 73.26%, 53.73%, 51.40%, and 73.51%, respectively for normal, asthma, COPD, and DPLD categories and corresponding mean CC values are 0.72, 0.53, 0.61, and 0.68. In collaborative environment, the combination of four channels ameliorates the performance compared to single channel are 91.78%, 85.95%, 81.55%, 95.38% and 0.89, 0.85, 0.85, 0.89 for normal and diseased cases.

Conclusion:
In this study, we have automatically estimated the onset and offset points of the respiratory cycles from multichannel LSS by smoothing their noisy envelopes. The proposed approach performs better when the information of all the channels is combined.

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Metabolomic signatures of asthma-COPD overlap (ACO) are diferent from asthma and COPD

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Results:
Multivariate and univariate analysis indicated that 12 metabolites [lipid, isoleucine, N-acetylglycoproteins (NAG), valine, glutamate, citric acid, glucose, L-leucine, lysine, asparagine, phenylalanine and histidine] were dysregulated in ACO patients when compared with both asthma and COPD. These metabolites were further validated in a fresh cohort of patients, which again exhibited a similar expression pattern.

Conclusions:
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Keywords:
NMR, Metabolomics, Asthma-COPD overlap, Serum, Biomarkers.

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A comparative study between ILD and normal subjects using respiration signal

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Background:
The respiration pattern may vary in case of Interstitial Lung Disease (ILD) than the normal respiration, as the underlying mechanism changes in the lungs. It may help to discriminate them from each other.

Aim of the study:
To differentiate ILD patients from normal subjects using respiration signal.

Methods:
A group of normal and ILD subjects were selected based on the chest X-ray and PFT (for normal)/ DLCO (for ILD) after their physical examination were done by the expert physicians. The respiration signal of each subject was collected using a data acquisition system and were pre-processed for further analyzation. Different feature like inspiration time, expiration time and respiration rate were extracted from the respiration signal.

Results:
A group of forty subjects were included in this study. Among them mean age of twenty normal subjects was 57.4±12.6 years, whereas, the mean age of twenty ILD patients was 59.7±7.5 years. The mean value of inspiration time (1.03±2.4), expiration time (1.41±4.9), and respiration rate (23±7.6) of ILD patients are different from mean values of inspiration time (1.54±4.3), expiration time (1.37±2.1), and respiration rate (19±3.2) of normal subjects. All the features extracted from ILD patients are statistically significant compared to that of normal subjects (p value<0.05).

Conclusion:
The extracted features from respiration signal show difference between ILD and normal subject population. More number of subjects and further validation are required to obtain better result in this study.

2 Chair Test: does time matters for change in pulse rate and saturation

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Background:
2 chair test has been a novel submaximal exercise test that counts for post exercise change in saturation and pulse rate. It allows a subject to move up and down between two chairs for 5 times continuously starting from sitting quietly on one and then moving to the other to sit and get up and return to sit again on the 1st chair. After 5 such movements, the subject's pulse rate and saturation were measured just after exercise and then at every 10 seconds to look for the pace of recovery.
Since the proposed test does not include the time to complete five movements, it is important to know how this 'time' factor is associated with the change in pulse rate and saturation.

Methods:
The time taken to complete five movements in each 2 chair test (from beginning of movement to finally sitting on the chair) were recorded by electronic timer . This exercise time was examined and correlates with cumulative change in pulse rate and saturation.

Results:
We have included consecutive 222 patients' 2CT data with the time been concomitantly recorded for performance of the test. The subjects had different respiratory complaints. The time required for the 5 movements were correlated with the cumulative change in pulse rate and saturation. There has been a poor correlationship of the mean time required (58.11±12.54) with mean cumulative changes in pulse rate (118.69±66.58) (r=-0.10) and saturation (-17.15±22.84) (r=-0.11)

Inference:
the post exercise change in haemodynamic (pulse rate) and oxygenation (SPO2) parameters in 2CT don't depend on the time taken for the test. Hence the measurement of the time in performing the test appears superfluous in ambulatory patients with respiratory diseases.

Proposal for a novel exercise test of movement between two chairs and assessment of its best quantitative measure for comparison with 6MWT

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Background:
Since the 6MWT (six minute walk test), a validated and accepted sub-maximal exercise test is logistically difficult to perform, we decided to innovate an simple exercise test consisting of movement between two chairs and looking for the post-exercise pulse rate (PR) and saturation (SpO2) changes. However, the establishment of the best quantitative exercise was essential.

Methods:
The performance was decided to allow sitting a patient on a chair comfortably with demonstration of stabilization of PR and SpO2 for one minute and then moving up to another chair kept at five feet away (face to face) and sit on it and get up to move back and sit on the original chair multiple times. Each such up and down movements constitutes one movement. We considered tests 4, 5, and 6 movements for a set of volunteers attending our OPD along with performing 6MWT in them keeping a gap of at least 30 minutes between each effort of exercise tests (2CT or 6 MWT) on a single day. For all of the tests we measured baseline PR and SpO2 and the same immediately after exercise and then at every 10 seconds for 2 minutes.
The cumulative change in PR and SpO2 for 4, 5, and 6 movements were, thereafter, compared to that after 6MWT.

Results:
The cumulative change in pulse rate and SpO2 after 4, 5, and 6 movements were all correlating well to the same after 6MWT. However, the correlation co-efficient of 5 movement 2CT matched best with that of 6MWT (R= 0.96 and 0.95 respectively)

Conclusion:
A five movement 2CT appears to provide similar physiological post exercise impact as 6MWT. Therefore 2CT should be validated based on 5 movements.

Difference in spirometric parameters and symptoms between smoker and non-smoker COPD patients

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Background:
Chronic obstructive lung disease (COPD) is known to be a disease caused predominantly by smoking. However, of late, people have become aware that non-smoking COPD too contributes significantly to the global COPD load. The study has aimed to the difference symptoms and spirometric parameters between the smoker and non-smoker COPD patients.

Methods:
Consecutive COPD patients diagnosed through spirometry were included between May 2010and July 2016following GOLD guideline. They were enquired about history of smoking and the major respiratory symptoms (cough, SOB, haemoptysis and wheeze). The patients were then divided into two groups based on history of smoking as smoker and non-smoker COPD patients. Statistical analysis was done to see the difference between the two groups.

Results:
Out of the total 747 smoker and non- smoker patients consisted of 444(59.4%) and 303(40.5%) of patients. The spirometric difference between the two groups were significant FEV_1post percentage predicted (47.00 vs. 53.00) $p<0.05$, FEV_1/FVC (0.55 vs. 0.61) $p<0.001$ favouring non-smokers. The symptoms of cough, SOB, expectoration and wheeze are more frequent in smokers. History of passive smoking was more common in smokers (28.37%) than non-smokers (17.49%).

Conclusion:
Non-smoker COPD constitute a significant percentage of our COPD population; but they are symptomatically and lung function (spirometry) wise better than smoker COPD. The issue needs further investigations.

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Does childhood tuberculosis and pneumonia affect adult COPD?

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Background:
Diseases in adulthood have been found to be associated with childhood exposures and sufferings. Both COPD and TB have many common risk factors which includes malnutrition, poor socio economic condition, smoking and bad quality of life. In this study we look for the association of childhood tuberculosis and pneumonia with COPD.

Material and methods:
We collected childhood history of 4345 patients of different respiratory diseases visiting Institute of Pulmocare and Research from 2010 to 2016. We have selected the patients of COPD (diagnosis by clinical evaluation and spirometry: FEV1 % <0.7) and looked for historical and documented evidence of childhood (<10 years age) pneumonia and tuberculosis in them. The patients were analysed in 3 categories as (a) Category I – COPD with history childhood tuberculosis (b) Category II – COPD with history of childhood pneumonia and (c) Category III- COPD with no history of tuberculosis or pneumonia.The symptoms and spirometry details were included in statistical analysis.

Result:
Out of 826 diagnosed COPD patients, 41 patients (4.96%) and 79 patients (9.56%) had childhood history of tuberculosis and pneumonia respectively. Those who have both tuberculosis and pneumonia (n=15) were included in both groups. 56.09% category I and 49.10% category II patients were smokers which increased their risk factors of COPD. Majority of category I patients had severe COPD with more expectoration, wheeze and frequent exacerbation compared to the other patients. Category I patients had poor lung function;FEV_1 post bronchodilator predicted percentage (44.00 vs. 50.00), $p<0.05$, compared to category III patients. Spirometric parameters were also poor for category II patients;FEV_1 (40.00 vs. 50.00) $p<0.01$ and FEF_{25-75} (15.00-20.00), $p<0.05$ compared to category III patients.

Conclusion:
The results indicated that the patients with history of tuberculosis and pneumonia in childhood have much more severe COPD with poor lung function and symptoms compared to patients who did not have such history.Further research in this field in necessary to validate the findings.

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FEF_{25-75} as a diagnostic tool to differentiate ACO from asthma and COPD

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Background:
It has been established that FEV_1 reversibility measurement is a diagnostic tool to identify asthma-COPD overlap (ACO) patients. In this paper we focus on the role of another spirometric marker of obstruction FEF_{25-75} to differentiate among ACO, COPD and asthma.

Method:
Patients (n=817) were diagnosed clinically and spirometrically and divided into three groups COPD (obstructive with no reversibility, n=478), Asthma (non-obstructive but reversibility=99) and ACOS (obstructive with reversibility, n=240). FEF_{25-75} post bronchodialator % predicted levels were compared among all three groups and ROC curve was made to understand the diagnostic ability of the parameter to distinguish the diseases.

Result:
The FEF_{25-75} post bronchodialator % predicted were significantly different among all the three diseases. ROC curve data revealed FEF_{25-75} could distinguish between ACO and Asthma with 90.42% sensitivity, 92.93% specificity, 96.87% positive predictive value, 80.0% negative predictive value and 0.95 area under the curve. The parameter could distinguish between asthma and COPD with 88.91% sensitivity, 92.33% specificity, 98.3% positive predictive value, 63.4% negative predictive value and 0.96 area under the curve. There was a 23.22% sensitivity, 93.33% specificity, 37.90% positive predictive value and 87.40% negative predictive value for distinguishing between COPD and ACO. The cut off value between COPD and ACO is 12.5 and ACO and asthma is 38.5.

Conclusion:
Distinguishing asthma from ACO and COPD is reasonably efficient with FEF_{25-75} and this parameter may be important while diagnosis.Further research in this field is important to validate the findings.

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Correlation between post exercise desaturation (desat max) in 2- chair test with pulmonary hemodynamic parameters.

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Background:
2- CT (2- Chair's Test) is a novel exercise test in which post exercise PR and desaturation are monitored, every 10 seconds for minutes. The max desaturation (Desat Max) has been used to decide the treatment for COPD associated with Pulmonary Hypertension by us. It is therefore important to look for an association of desat max. with the hemodynamic parameters of Right Heart Catheterization (RHC).

Methods:
We have included patients with different respiratory ailments showing the presence of pulmonary hypertension in our screening protocol (clinico-radio- echocardiographic). The subjects having a suspected class III PH were therefore subjected to 2- CT and RHC. The desaturation mas calculated from the 2 CT were compared to the different hemodynamic parameters as mPAP (mean pulmonary arterial pressure), PVR (pulmonary vascular resistance) and PCWP (pulmonary capillary wedge pressure).

Results:
70 subjects of Class III PH were available for statistical analysis. There was a weak negative correlation between mPAP and desat max. ($r = -0.05$) and a moderate positive correlation of desat max. with PVR ($r = 0.31$) and PCWP ($r = 0.2$) respectively.

Inference:
The desat- max correlates better with PVR and less moderately with PCWP. This suggests that desat. max is contributed by both PH and left ventricular filling pressure. Further investigations are required to elaborate the association of degree of desaturation after exercise (2- CT) with such hemodynamic abnormalities.

The Correlation of pulmonary arterial pressure parameters in Class III Pulmonary Hypertension

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Background:
The presence of Class III Pulmonary Hypertension (PH) is a reality in practice, although the available data is sparse and RHC is rarely done for the accurate diagnosis of PH.

Objective:
To correlate the calculated mean pulmonary arterial pressure (mPAP) derived from transthoracic echocardiography, with the actual mean pulmonary arterial pressure (mPAP) derived from Right Heart Catheterization (RHC).

Method:
In a screening survey, the suspected PH patients were screened on the basis of clinico-radio-echocardiographic criteria as practiced by the Institute of Pulmocare and Research (IPCR). All the echocardiography were done by a single expert having a fixed protocol including the measurement of inferior vena cava (IVC) diameter, tricuspid regurgitation (TR) jet velocity, determination of valvular motions in parasternal short axis vein, Right Ventricular (RV) outflow tract acceleration time, detection of notching of the flow velocity overlap (when present), Isovolumic relaxation time (IVRT) and pulmonary artery diameter. The correlated mean PAP has been included for analysis. RHC was done through jugular verses subclavian vein verses femoral catheterization, observing standard protocol. Hemodynamic parameter as mPAP was also determined. The measured PA pressure by the two methods were regarded equal of the echocardiographic derived PA pressure fell within ±10% of RHC measured PA pressure. The echocardiographic performance was countered in frequency of over diagnosis and under diagnosis.

Results:
66 consecutive patients with Pulmonary Hypertension from varied etiologies underwent RHC. The correlation between the echocardiographic derived mPAP (35.64± 6.56) and that of RHC deduced mPAP (31.69± 15.09) was deduced as (r= 0.55). There was reportedly 52.85% of over diagnosis and 8.57% under- diagnosis of PA pressure by Doppler echocardiography.

Inference:
Echo Doppler estimated PA pressure has a good correlation with RHC measured PAP. However, there is significant frequency of over diagnosis or under diagnosis by Echocardiography. Therefore, although echocardiography is often regarded inaccurate it can be useful for the screening of PH in this category of patients.

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