Annual Congress on Biomedical and Bio Instrumentation

May 27, 2022 | Webinar

Scientific Tracks & Abstracts

Sessions

Bioinformatics | Biopharmaceuticals | Biomedical Research | Biomedical

Session Introduction

Title: **A key stakeholder in the successful hospital project planning, Execution and delivery**

Rajeev Kumar | Medical Equipment Planning | UAE

Title: **Placenta accreta spectrum in patients with pernicious placenta previa : The analysis of MRI Features**

Zhan Zhang | Tianjin Central Hospital of Gynecology Obstetrics | China

Title: **Does fever increase or decrease blood circulation?**

K. M. Yacob | Marma Health Centre | India

Title: **Verti GO 3D virtual reality device to fix BPPV**

S Vinoth | Mahendra College of Engineering | India

Title: **Bioinformatics in drug discovery**

Utkarsh Uttamrao Bhamare | Ahinsa Institute of Pharmacy college | India

ANNUAL CONGRESS ON

BIOMEDICAL AND BIO INSTRUMENTATION

May 27, 2022 | Webinar

Received Date: 09-01-2022 | Accepted Date: 10-01-2022 | Published date: 30-06-2022

A key stakeholder in the successful hospital project planning, Execution and delivery

Rajeev Kumar

Medical Equipment Planning, UAE

Statement of the Problem: Hospital Project – Successful Planning, Execution and Delivery for the better patient care and experiences.

An expert Biomedical Engineer with experience in Medical Equipment Planning must be involved as a key stakeholder since the initiating phase of the project till final handing over or closing phase of the project. During the entire lifecycle of the project, the Medical Equipment Planner helps the project team in Medical Equipment Planning, Tendering, Procurement, Site Preparation/ Co-ordination/Supervision, Installation and Commissioning, Functional Testing, QA Testing, Application Training and Final Handover to the end user and the Biomedical Operation Team for the proper maintenance and repair services.

Process & Methodology: Each of the above activities requires commitment, dedication and a lot of efforts with a process-oriented mindset to deliver the project successfully.

Medical Equipment Planning: The process starts with Medical Equipment Planning Phase, a critical phase which includes but are not limited to preparing the BOQ (Bill of Quantity), Room by Room Equipment Schedule, Estimating Budget, MEP Requirements, etc.

Tendering: Preparing the tender documents like RFP with detailed technical specifications and feature required. All the contractual terms which include but are not limited to supply, delivery, installation, commissioning, trainings, site preparation if applicable, warranty, maintenance contracts, payment terms and other contractual legal terms must be clearly defined in RFP in order to avoid any conflict at later stage.

Procurement: Reviewing all the submitted RFP. Preparation of the Technical and Commercial evaluation sheet based on the submittal. Organize negotiation meeting with top three tenderers in order to get a better value and finalize the deal. Once the supplier gets finalized, process the order to issue an official Purchase Order or Contract whichever is applicable based on the nature and value of the capital medical equipment.

Site Preparation: Medical Equipment Planner plays a vital role in reviewing and validating the preinstallation requirements, preinstallation drawings, shop drawings of the final selected ordered equipment. The process is followed by the proper coordination and supervision of the site preparation works.

Supply & Delivery of the Equipment: Proper coordination with the supplier is required during this process in order to get the ordered equipment and accessories on the site as per the schedule. Once delivered, all the items should be assessed and verified as per the issued purchase order and delivery note/invoice. Any discrepancy, short supply, physical damage during transport, etc, must be communicated to the stakeholders for resolution on priority.

Installation & Commissioning: Once the site preparation is completed and equipment is delivered on the site, installation and

commissioning process starts under the close supervision of Medical Equipment Planner. At the end of the process, the supplier makes an Installation Report (IR) which is signed by the Medical Planner and document this IR in the equipment history file for future use.

Project Handover and Close Out: After successful installation and commissioning, the equipment is tested for its functional use, Quality Assurance Test if applicable is performed, Application Training is organized and conducted for the end user and make them confident to operate the equipment for patient use. Technical Training is organized and conducted for Biomedical Operations Engineers and Technicians.

All the critical documents like Purchase Order, Delivery Note/Invoice copy, Installation Report, QA Report, Training Record, user manual, Service/Technical manuals, etc, are handed over to the Biomedical Operations Team.

Conclusion & Significance: The role of the Medical Equipment Planner is very critical to the success of a Hospital Project.

Biography

Rajeev Kumar is a dynamic biomedical/ electronics engineer and a certified PMP® from PMI USA with 15 years of quality experience in medical equipment planning and healthcare projects with the topmost reputed healthcare organizations in Dubai and India. In his previous assignments, he has worked with the world's topmost organizations like American hospital Dubai, Philips healthcare Gurugram, max healthcare Saket New Delhi, and Indraprastha apollo hospitals New Delhi. Currently, he is working with a very reputed design consultant on a freelance basis and helping their international clients with medical equipment planning and procurement. For any collaboration, he is open to helping the global healthcare community in medical equipment planning and consulting.

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ANNUAL CONGRESS ON

BIOMEDICAL AND BIO INSTRUMENTATION

May 27, 2022 | Webinar

Accepted Date: 29-01-2022 | Accepted Date: 31-01-2022 | Published date: 30-06-2022

Placenta accreta spectrum in patients with pernicious placenta previa : The analysis of MRI Features

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Background: Pernicious placenta previa(PPP) means that placenta previa this pregnancy after previous cesarean section. It is a kind of disease which may largely combined with placenta accreta spectrum (PAS). The prenatal diagnosis of the implantation depth is important to clinical treatment for the reason that hemorrhage may occur during and after delivery if implantation into the uterus is deeper, even the uterus has to be extracted to save life.

It is well-known that ultrasound is a routine prenatal inspection. But it is sometimes difficult to make a definitive diagnosis. In this case, MRI may bring many valuable messages. However, nowadays no consensus were made on the meaning of MRI signals.

Purpose: To analyze the MRI features of PAS in patients with PPP and try to find the meaning of each feature.

Subjects: Totally 198 patients with PPP were divided into 3 groups: Group-1 with normal placenta (NP Group)(n=46), group-2 with placenta accreta or placenta increta(PA&PI Group) (n=108), and group-3 with placenta percreta(PP Group) (N=44).

Field Strength/Sequence: 1.5T MRI, B_FFE, T2_SS_TSE, T1_FFE and DWI .

Assessment: Two radiologists independently evaluated 8 MRI features of PAS.

Statistical Tests:SPSS16.0.

Results: Significant differences were found in 4 MRI features between patients with NP Group and those with PA&PI Group($P < 0.05$), while significant differences were found in 7 MRI features between patients with PA&PI Group and those with PP Group ($P < 0.05$). The MRI feature of "tenting of the bladder" was found to have significant difference in the contrast of two groups(PP1 Group and PP2 Group).

Data Conclusion: "Abnormal uterine bulging", "placental bulging", "uterine serosal hypervascularity", "placental heterogeneous intensity" are useful MRI features to distinguish NP Group from PA/PI Group , and they are useful features to differentiate PP Group from PA&PI Group, too. The other 3 features, such as "abnormal intraplacental vascularity", "placental recess", "T2 dark intraplacental bands" are also useful features for differentiating PP Group from PA&PI Group. The MRI feature of "tending of the bladder" is useful in differentiating PP1 Group from PP2 Group.

Recent Publications

1. Zhang Zhan, Xu Xiangfeng, Kang Liqing. Editorial for "Validation of Phase-Resolved Functional Lung (PREFUL) Magnetic Resonance Imaging Pulse Wave Transit Time in Healthy Subjects and Chronic Obstructive Pulmonary Disease"[J]. J Magn Reson Imaging, 2021, undefined: undefined.

2. Zhang Zhan, Kang Liqing.The value of MRI in the diagnosis of placenta accreta in the middle and third trimester of pregnancy[J].Tianjin Medical Journal,2019,47(01):108-112.

3. Zhang Zhan, Xu Xiangfeng, Liu Haidong, Wang Wei.Diagnostic value of MRI in the T-staging of cervical cancer[J].Journal of Shandong University(Health Sciences), 2016,54 (05): 70-73.

4. Zhang Zhan, Xu Xiangfeng, Wei Gang.Evaluation of MRI-staging and assessment of lymphatic metastasis in cervical cancer[J].Tianjin Medical Journal,2016,44(08):1022-1025.

Biography

Zhan Zhang came from China, she graduated from zhengzhou university school of medicine with the bachelor's degree, then she finished the master's degree in sun yat-sen university zhongshan school of medicine, and now she got M.D. In tianjin medical university. she has worked in tianjin central hospital of gynecology obstetrics as a radiologist for almost 15 years and gained plenty of experiences in radiological diagnosis, especially in aspects of genecology & obstetrics and pediatrics. She did peer reviews for J Magn Reson Imaging (IF:4.8)for many years.

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ANNUAL CONGRESS ON

BIOMEDICAL AND BIO INSTRUMENTATION

May 27, 2022 | Webinar

Accepted Date: 21-01-2022 | Accepted Date: 22-01- 2022 | Published date: 30-06-2022

Does fever increase or decrease blood circulation?

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When it comes to treating back pain, neck pain, and knee pain, it is often heard that the cause of the pain is reduced blood flow. A variety of heat-inducing devices are used to increase blood flow to the lower back, neck, and knee pains. Physiotherapy often provides more heat than fever.

To this day, no one has heard that fever is caused by poor blood flow.

As the disease progresses, blood flow decreases. Body tingling, body aches, and narrowing of the blood vessels under the skin are the signs, symptoms, and signals of decreased blood flow. Signs, symptoms, and signals of decreased blood flow show before the onset of fever.

When the disease becomes a threat to life or organs blood circulation decreases, Temperature of fever will emerge to increase prevailing blood circulation.

It is a well-known fact that as the disease progresses, blood flow decreases and this can lead to death. When there is a decrease in blood flow and its signs, symptoms, and signals, the immune system do actions to increase blood flow to save lives. It has been proven around the world that all types of heat increase blood flow. The heat of the fever increases the blood flow. Fever increases blood flow, which means more lymphocytes flow through lymphoid tissues. If the heat of the fever increases the blood flow, reducing the heat reduces the blood flow. It will increase inflammation and infection and finally, death will occur.

According to physics, it is foolish that when fever temperature is reduced, shows the symptoms, signs, and signals of reduced blood flow, are ignored and then treated to reduce the heat again. The fever is heat energy. To date, modern science has not studied what actions were carried out heat on fever.

The cause of all complications, including death, is the treatment of fever without knowing why it is hot.

What kind of treatment should be given if you have symptoms of decreased blood flow?

Treatment should be to increase blood flow.

This is the basic principle of physics.

Is there any benefit in reducing body heat during fever?

There is no merit of any kind.

Not only is it of no benefit, but it also causes death by inflammation and infection.

The actual treatment for fever is to increase blood circulation. Two ways to increase blood circulation. 1. Never allow body temperature to lose 2. Apply heat from outside to the body. When the temperature produced by the body due to fever and heat which we applied to the body combines together, the blood circulation increases.

Heat-reducing fever treatment with water and paracetamol should be banned as soon as possible.\

Biography

A practicing physician in the field of healthcare in the state of Kerala in India for the last 33 years and very much interested in basic research. My interest is spread across the fever, inflammation and back pain. I am a writer. I already printed and published nine books on these subjects. I wrote hundreds of articles in various magazines. After scientific studies, we have developed 8000 affirmative cross checking questions. It can explain all queries related to fever.

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ANNUAL CONGRESS ON

BIOMEDICAL AND BIO INSTRUMENTATION

May 27, 2022 | Webinar

Accepted Date: 21-04-2022 | Accepted Date: 25-04- 2022 | Published date: 30-06-2022

Verti GO 3D virtual reality device to fix BPPV

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Vertigo in recent days has become common in people who experience spinning sensation when they change the position of head rapidly. Benign Proximal Positional Vertigo is major cause of vertigo in people, this is the defect that arise from the inner ear. More than 20 million people suffering from Vertigo around the world, most cases were recorded in South Asian countries and United States, this needs special attention as it is difficult to walk and impossible to drive. 3D virtual device could reduce the frequency of vertigo occurrences. On performing the exercise in regular basis occurrence of vertigo can be avoided, this reduces the number visit to clinician's place. Physicians treat this with a set of exercise such as Epley Maneuver or Brandt – Daroff. This requires patient to travel to the clinician often and it takes more concentration to do this exercise. To make this exercise simple and easy to be executed we design a virtual device. This device would assist the patient to perform the exercise themselves comfortably on their living room all alone. It comprises of a Virtual reality eye piece and a display; this would make the patient more comfortable to perform the exercise without any support or physical guidance.

Biography

S Vinoth having a wonderful experience with biologics a company that produces BPPV devices already, I have used to work with many innovative products in both diagnosis and therapeutic. Completing his masters in Optoelectronics and laser technology and then on continued to work as a teaching faculty in couple of renowned institutions and currently working at mahendra college of engineering, located in Salem, Tamilnadu. India

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May 27, 2022 | Webinar

Young Researcher Forum

ANNUAL CONGRESS ON
BIOMEDICAL AND BIO INSTRUMENTATION
May 27, 2022 | Webinar

Accepted Date: 03-02-2022 | Accepted Date: 04-02- 2022 | Published date: 02-06-2022

Bioinformatics in drug discovery

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Bioinformatics, is an interdisciplinary field that develops methods and software tools for understanding biological data, in particular when the data sets are large and complex. As an interdisciplinary field of science, bioinformatics combines biology, computer science, information engineering, mathematics and statistics to analyze and interpret the biological data. Bioinformatics has been used for in silico analyses of biological queries using mathematical and statistical techniques. Bioinformatics deals with the exponential growth in biological data have led to the development of primary and secondary databases of nucleic acid sequences, protein sequences, and structures. Some of the well-known databases include GenBank, SWISS-PROT, PDB, PIR, SCOP, CATH, etc., these databases are available as public domain information and hosted on various Internet servers across the world. The basic research is done by using different databases along with the help of sequence analysis tools such as BLAST, FASTA, CLUSTALW, etc. The drug discovery process can be described as the identification and validation of a disease target and the discovery and development of a chemical compound to interact with that target. Bioinformatics is very useful for biomedical investigators to test the clinical samples.

Biography

Utkarsh U. Bhamare is studying Pharmacy (medicine studies). He is in final year of B. Pharmacy at ahinsa institute of pharmacy college. He has published 2 Articles in “Research Journal of pharmacognosy and phytochemistry”. He gave presentation on the topic “Animal modelling advances” at the [International webinar on latest advancements in medicinal biology] Dec 2021. He received an award from his college for being a “Best journal of the year”. His interest in pharmacy began as a teenager. He has quick adaptability to emerging technology. He always ready to learn the new development or advancement in drug. He has excellent organizational planning and coordination skills and always ready to accept challenges.

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