CSIR-IMTECH & ILBS sign MoU to treat liver ailments with alternative microbial approaches

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New Delhi: In what could be a major breakthrough in treating liver-related ailments, the CSIR-Institute of Microbial Technology (IMTECH), Chandigarh on 14th May announced a collaboration with the Institute of Liver and Biliary Sciences (ILBS) for developing alternative microbial approaches to the currently used treatments for patients affected with Severe Alcoholic Hepatitis (SAH).

Under the Memorandum of Understanding, ILBS and CSIR-IMTECH will collaborate for 'Microbiome Research' and perform clinical trials on patients affected with SAH. The aim is to explore the possibility of formulating minimal microbial consortia from healthy human poop, which can be administered easily for treating SAH and other liver related ailments. It is well known that poop carries a good representation of bacteria in the human gut that are helpful in maintaining a healthy gut and health.

The first interaction of IMTECH and ILBS Scientific Task Force was presided over by Dr Shekhar Mande, Director General of CSIR and Secretary of the Department of Scientific and Industrial Research (DSIR), Dr Shiv Sarin, Director, ILBS, Dr Anil Koul, Director, IMTECH and

other scientific officials from both the institutes.

Currently, the ILBS is using a novel faecal microbiota transplant therapy in SAH patients wherein, poop of healthy donors is processed and administered to a patient having Alcoholic hepatitis caused due to excessive intake of alcohol. ILBS is a premier institute and hospital established under GNCTD for most advanced and specialized healthcare in liver and biliary disorders and has a stool bank for Faecal Microbiota Transplant (FMT).

Patients having severe alcoholic liver disease are often treated with either steroid, which has major side-effects on the immunity of the patient and can result in unwarranted infections with only 50% success rates. The other option is liver transplantation, which is often not feasible due to lack of donor and expenses. With FMT, the entire procedure for treating the patient could change as it just involves faecal transplant through nasal or rectal route. The initial results show that the method is efficient and can be a good and affordable alternative for SAH patients. However, the major challenge in FMT procedure is the identification of healthy poop donors and delivery through nasal or rectal route.

Explaining the role of his institute, Dr Anil Koul, Director, IMTECH mentioned, “Scientists at IMTECH will work closely on healthy human stool samples provided by ILBS to characterize the microbes and their metabolites. This will enable them to develop a capsule which contains consortia of selected bacteria from healthy human poop donors that can be administered to liver patients through capsule format orally.”

Dr Shiv Sarin and Dr Anil Koul at IMTECH along with their team of scientists and doctors will design the clinical trials and microbial consortia respectively to understand the best possible route of administration and the dosage to be given to patients. Once IMTECH scientists apply their expertise and experience in identifying the core gut microbial consortia present in human faecal samples that would have therapeutic potential towards Severe Alcoholic Hepatitis, clinical trials would commence. Around 250-300 patients will be clinically monitored for testing the efficacy of the treatment procedure over a period of next 36 months.

Speaking at the occasion, Dr Shiv Sarin, Director, ILBS said “From a treatment perspective, our objective is to identify the best combination of beneficial microbiota that can be successfully administered in the liver patients caused due to alcohol misuse and we are privileged to have IMTECH, a premier national lab in microbial technology, as our partner for this novel innovative translational science”

Dr Shekhar Mande, DG, CSIR emphasized that CSIR has always been an advocate for investing in microbiome research and provide alternative non-invasive therapies to pathogenic as well as life style related diseases. The present translation microbiome project with ILBS aims to find a viable and sustainable disease management and treatment solution(s) that are more acceptable, economical and with increased compliance as compared to liver transplantation for liver disorders.

As per WHO report released in 2018, 2.6 lakh Indians die every year due to reasons attributable to consumption of alcohol either by causing liver damage (chronic liver disease and cirrhosis) which may also lead to liver cancer. The report highlighted that globally around 51.1 men and 27.1 women per 100,000 population suffered from liver cirrhosis and cancers associated with alcohol abuse resulted in 181 men per 100,000 population. Overall, the harmful use of alcohol causes more than 5% of the global disease burden.

Standardization of route of administration and the dosage of poop in a capsule formulation

containing minimal bacteria consortia would help develop a novel therapeutic strategy for treating patients with severe liver ailments and can also be used for diseases like Non-Alcoholic Steato Hepatitis (NASH) and cirrhosis.