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Tissue Science 2019: Neuronal exosome-derived human tau toxicity on recipient cells: Shauna H. Yuan- University of California, USA

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Alzheimer's disease (AD) is characterized by deposition of beta-amyloid as amyloid plaques and tau as neurofibrillary tangles. While the distribution of beta-amyloid is diffuse and does not correlate well with disease symptomatology, tau deposition follows progression in a synaptically connected pathway. Such progression is the basis of the Braack staging for the pathological diagnosis of AD, and correlate with the severity of patient symptoms. The disease progression suggests spreading of pathology from one area to another in the brain. Recently published work suggest that propagation of toxic protein tau can be mediated by exosomes. Exosomes belong to extracellular vesicles (EVs), which are released by the cells through the late endosomal pathway. We hypothesized that exosomes contain cargos which could mediate propagation of toxic proteins. We isolated exosomes derived from neuronally-differentiated, human induced pluripotent stem cells that expressed the repeat domain of tau P301L and V337M mutations (NiPSCEs) and injected them into the wild-type mouse brain. We observed pathological changes including hyperphosphorylated tau, cell loss and blebbing of the dendrites in the recipient mouse neurons in vivo. The pathological tau also spread to other cortical and subcortical regions in both hemispheres. These results suggest that exosomes may regulate propagation of neurodegeneration, which may have implications for diagnostic and therapeutic potential.

India's coronavirus count has crossed that of China's, however there is still no break for us from the pandemic. In conditions such as these, India is furnishing itself with thoughts and developments to battle the episode. From assembling our own programmed veil machines to COVISAFE, it's specialists and specialists, yet in addition understudies who are contributing to utilize innovation.

Automatic mask machines

To battle the lack of N-95 covers in India and to dispose of the import of exceptional programmed machines and their parts from China, engineers from NIT and IIM Calicut, and a beginning up firm from Bengaluru are presently fabricating these machines.

Ruhdaar: The low-cost frugal innovator

Architects at Design Innovation Center (DIC) of Islamic University of Science and Technology, alongside a group of building understudies from IIT Bombay, have made a model of an ease ventilator and named it 'Ruhdaar'. Clinical specialists at SKIMS are before long set to assess it, which is working effectively in the lab and cost the group around Rs 15000.

Three models were created by the group headed by Coordinator-DIC Dr Shahkar Nehvi, Dr Majid Hamid Koul, ex-staff of IUST, Peerzada Shoaib, Asif Shah, Zulquarnain, Jawad Ahmad from IUST, Dr Saad Parvaiz from NIT Srinagar, Dr Shabir Hassan from Harward University as abroad coach and Abdul Rahim from Rahim Greens, before arranging 'Ruhdaar'.

Low-cost PPEs: The Navy's innovation

A specialist in the Indian Navy has built up an ease PPE that helped Indian Navy procure a patent in relationship with the National Research Development Corporation (NRDC), an endeavor under the Ministry of Science and Technology. It is made of a unique texture with high 'breathability', which is appropriate for hot and moist conditions pervasive in India. The innovation has been approved by ICMR as well. The large scale manufacturing of this PPE is in progress with a group of pioneers from the Navy working in close coordination with IPFC, set up under the Mission Raksha Gyan Shakt in 2018.

Advanced wash basins

The Jammu and Kashmir Police group has made a feet-worked handwash machine and are hoping to introduce it at police headquarters over the Union Territory. A vehicle workshop has likewise been changed over into a unit to make sanitisation burrows.

The work is partly presented at 13th Edition of International Conference on Advances in Tissue Engineering and Biomaterials Science, June 17-18, 2019, London, UK

In the mean time, Talegaon Dabhade metropolitan company specialists thought of another jugaad development. A washbasin in their premises was adjusted so that one need not contact either the hand wash bottle or the channel, rather push a switch by foot.

A comparable washbasin has been created by the Barwadih Wagon Care Center of the Dhanbad Division, Indian Railways. It permits the water tap and the cleanser allocator to be precisely worked without contact.

COVISAFE: Transporting patients

Specialists in Nagpur advanced COVISAFE to guarantee the protected vehicle of Covid-19 patients. The crate fits well on clinical cots and is totally water/air proof. Crisis offices like oxygen and ventilators can be effectively introduced on the crate. In particular, when the coronavirus quiet inhales, the air that comes out of the case is separated. The thought is to help keep specialists and social insurance staff from getting contaminated.

Safe swab: Phone booth testing

In an offer to keep social insurance staff from getting tainted, the BMC has made a telephone corner where patients can be tried for coronavirus. The technique which was before fused in South Korea shields the air from spilling and furthermore spares a great deal of time. As of now, the BMC is wanting to test in any event 1500 patients through this by setting up the office at Kasturba Hospital.

India, yet additionally the world is enduring with lack of PPE, clinical gear and medications to help battle Covid-19. Indeed, even as the worldwide count spikes to more than 45 lakh, trailblazers over the globe, including residents, are utilizing innovation to help contain the spread of the pandemic and in the end it.

Crisis ventilators, germ trap veils, defensive plastic cases, keen caps, telephone corners, purifying UVD robots, air terminal cleaning robots, without hands entryway openers are only a couple of the numerous developments that nations have concocted. In the coronavirus time, and the one post pandemic, the world is getting ready to grasp another ordinary, controlled by wellbeing inviting innovation.