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EDITORIAL

Poly Vinyl Alcohol Meshes for the Management and Treatment of Abdominal Hernia- A Significance Of Tissue Engineering.

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Weakness or defect in the abdominal wall or inguinal area is generally referred as Hernia or Abdominal hernia. Abdominal Hernia occurs in many people who has undergone abdominal surgeries in their lifetimes. This is particularly with the age groups more than 40 Years of age, Out of these the major incisional hernia can occur in about 10% of patients who have undergone their abdominal surgery. The causes vary from patient to patient and the prominent one being the usage of surgical mesh when performing the abdominal surgery. One of the solutions can be the usage of surgical mesh. In the market of several surgical meshes are readily available as a regenerative medicine for abdominal hernia repairs such as the degradable varieties and non-degradable types. Such meshes are specialized in many functions of healing the process and are done after the implantation. The major setbacks of these complex processes are the tissue engineered replacement lays its structure and porus size of the scaffold as well as the strength of the host tissue

Polypropylene non-absorbable meshes have been used more than50 years. Intra-peritoneal application of this mesh has a lot of complication, e.g. high rates of fistulas and infection, adhesion formations, mesh migration and chronic pain comparing to the preperitoneally placed mesh. The ideal hernia mesh should be absorbable and biocompatible, flexible, non-adhesive, and it should degrade into nontoxic fragments. A number of processing techniques have been used to prepare polymer nano-fibers.

Hernia is the weakness or defect in the abdominal wall or inguinal area. One of the solutions can be the usage of surgical mesh. To fend off the effects of intra-peritoneal positioned non-degradable mesh our research group created absorbable scaffolds by electro-spinning. For the biocompatibility experiments In vitro studies were performed on Human lung epithelial (A549) cell line and the In vivo evaluations were observed on Wistar rats (n=45, 200-250g). In this animal model to determine the biological behavior abdominal wall defect was performed than was covered with the nano-fiber mesh. Adhesion formations were measured by a modified Diamond score. From the samples macroscopically and histological responses were graded. In vitro examination showed that the monomers of the nano-fiber are biocompatible for the cells. According to the histological examinations all samples were integrated to the surrounding tissue and there were no foreign body reaction. Significantly more adhesion formation were found on the non-absorbable suture line (n=19) than were attached to the surface of the mesh.

The biocompatibility of the nano-fiber surgical mesh was demonstrated by our studies. This nano-fiber mesh could be a promising scaffold for the tissue engineering.