At the opening ceremony, Dr Gil Alcôrndo, chair of the 2019 EAO congress, officially announced that the 28th annual scientific meeting is underway. With attendees who have traveled from across Europe and beyond to participate, the congress is designed to impress and 130 speakers will be presenting a wide range of lectures, hands-on workshops and clinical video sessions.

EAO 2019 is being held under the High Patronage of the President of the Portuguese Republic, Dr Marcelo Rebelo de Sousa. As part of this, a video de Sousa was played during the opening ceremony in which he welcomed attendees and highlighted the country’s rich cultural heritage. “Portugal is not just a country with a long and important history, but one with a bright future as well,” de Sousa said.

“I wish you not only an unforgettable stay in this country, but also hope that you will come back soon to get to know our culture better,” he added.

Prof. Kamal Mustafa from the Department of Clinical Dentistry at the University of Bergen in Norway is sponsoring and leading, together with Dr Centrei Gyirde (University of Bergen) and Prof. Mariano Sanz (Complutense University of Madrid), a multicentre randomised controlled clinical trial (RCT) on stem cell bone building. This research is part of the European MAXIBONE project, which is investigating whether new jawbone prior to placement of dental implants can be grown with stem cell technology. At EAO 2019, Mustafa presented his research group’s work in a session that covered the topic of “New avenues in implant dentistry”. He shared insights into MAXIBONE with Dental Tribune International.

Prof. Mustafa, you gave a lecture titled “Are stem cells the implants of the future?” On what did you focus during your presentation?

The potential and value of stem cell-based therapies were explored in the early 1990s when therapeutically relevant tissue-supportive cells such as mesenchymal stem cells (MSCs) were applied for the regeneration of skeletal tissue. This new approach using cell therapy for bone regeneration is promising and could be used as a alternative for the classic gold standard treatment with bone grafts. The promising data from a recent clinical trial in 11 patients in Bergen, as part of the EAO REBORNE project, has paved the way for improved, well-designed trials utilizing stem cells for mandible augmentation and alveolar reconstruction.

MAXIBONE began at the start of 2018 and will be completed in 2021. What is the current status of the project?

MAXIBONE aims to create personalized bone regeneration by using culture-expanded autologous bone marrow stem cells and biomaterials. The four-year project started with European funding of €6 million. The large consortium is coordinated by Prof. Pierre Layrolle from the University of Nantes in France and me and gathers 12 partners from six European countries, including academic and research institutes, cell therapy units and companies, among them the global leader of dental implants. In the project, an RCT of 150 patients will compare the safety and efficacy of autologous cultured stem cells and calcium phosphate biomaterials with autologous bone grafting in alveolar bone augmentation prior to dental implants. In the previous European project, REBORNE, the clinical safety of this regenerative strategy was demonstrated in 11 patients.

How does the process work exactly? Do the stem cells have to be autologous?

Yes, autologous cells are harvested from bone marrow, expanded and cultivated for two weeks in two cell manufacturing centres in Germany and France. Afterwards, they are delivered to the eight clinical centres in five European countries and implanted in patients in combination with biomaterials. The procedure has been reported in our recent publication by Gyirde et al. from 2018, which was part of the EU REBORNE project.1

Is this stem cell treatment less invasive than the standard bone transplant?

The patients tolerated the treatment very well, as described and reported in the previously mentioned study. The data generated from the clinical trial demonstrated that bone marrow stem cells expanded successfully in the laboratory and, combined with synthetic bone substitute biomaterial in the patient to augment mandibular bone, induced significant new bone formation. The generated bone volume was adequate for dental implant installation. Healing was uneventful. The patients were satisfied with the aesthetic and functional outcomes. No side effects were observed.

Could this method of bone replacement be used for other areas of the human body?

Yes, a good example of using the method to repair long bone defects has been demonstrated and reported in a study by Gómez-Barrera et al. from 2018.2 This intervention clinical trial was also part of the REBORNE project and performed to evaluate the safety and feasibility of autologous expanded MSCs from bone marrow associated with bioceramic (microporous biphasic calcium phosphate granules; MBCP®, Biomatante) scaffolds in patients with long-bone delayed unions and non-unions (after a minimum of three months from acute fracture). No severe adverse events related to the bone marrow MSCs were reported. The construct of stem cells combined with the biomaterial which was used in our mandibular clinical trial was surgically prepared and successfully delivered to the non-unions, and 26 of 28 treated patients were found to be radiologically healed at one year after treatment.²

References:


“Using cell therapy for bone regeneration is promising”

An interview with Prof. Kamal Mustafa, University of Bergen, by Franziska Beier, DTI.

The President of EAO, Prof. Henning Schliephake, followed, also addressing the crowd via a pre-recorded video. The focus then turned to Alcôrndo and Dr Susana Noronha, co-chair of the congress, who spoke about what they hoped to achieve under this year’s theme of “The bridge to the future”.

Alcôrndo thanked the members of the EAO congress and scientific committee, stating, “It is only through their tireless work that we can have such a large attendance from such a wide range of countries.” Over 4,000 attendees overall from more than 80 countries are expected to attend the congress, according to a press release from the EAO.

“This is the first time the scientific meeting is taking place in Lisbon, making it an extra special occasion,” said Noronha. “I sincerely hope that this meeting exceeds your expectations and that you all have a fantastic congress.”

*From left: Dr Susana Noronha and Dr Gil Alcôrndo, co-chair and chair, respectively, of the 2019 EAO congress, at the opening ceremony.

President of Portugal welcomes attendees at EAO 2019

Opening ceremony promises attendees an engaging learning atmosphere.