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Cystic Fibrosis Research News

Title:

Impact of bone-active drugs and underlying disease on bone health after lung transplantation: a longitudinal study

Lay Title:

Do bone active therapy and lung disease influence the skeletal outcome after transplantation?

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What was your research question?

Patients receiving lung transplantation often undergo bone loss and fragility fractures. Do the use of bone-active drugs prevent these complications? Is the clinical course different in patients affected with cystic fibrosis or other lung diseases?

Why is this important?

The occurrence of fractures (which are mainly in the spine) have a negative impact on the lung transplantation outcome because they cause less opportunities for movement (immobilization) and altered scape of the chest wall (deformities) thus compromising the breathing capacity. The available guidelines are not clear on which patients should be treated with bone-active drugs. Some recommendations are given for people with cystic fibrosis, but no indications have been established for patients with other end-stage lung diseases (such as chronic-obstructive pulmonary disease, idiopatic fibrosis etc..).

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What did you do?

We aimed to start a bone-active therapy (antiosteoporotic drugs) and to evaluate the condition of the bones in all patients undergoing lung transplantation in our center. Due to the challenging management around the transplantation, a small group of patients was not treated with antiosteoporotic drugs, so we could compare the skeletal outcome of treated and not treated patients. We also compared the skeletal clinical course of patients with cystic fibrosis and other lung end-stage diseases.

What did you find?

After lung transplantation, bone mass improved only in treated patients but one out of ten patients suffered from a fragility fracture even if treated. A lot of patients suffered from osteoporosis and fractures at the time of transplant (nearly 50%). This was similar in patients with cystic fibrosis and other lung diseases, nevertheless the first were significantly younger. After transplantation, fractures occurred almost entirely in patients affected with other lung diseases.

What does this mean and reasons for caution?

Overall, bone active drugs can reduce the bone mass loss after lung transplantation but we could not provide evidence that they can prevent fractures. Bone fragility is often seen in patients with end-stage lung disease and they should be directed to the bone specialist earlier. Despite the fact that lung transplant candidates with cystic fibrosis have a more severe skeletal involvement, after lung transplantation fractures occurred mainly in patients with other lung diseases. These are the ones to monitor more cautiously and they should benefit more from bone-active drugs treatment in this setting although current guidelines do not give specific recommendations.

What's next?

Testing not only the bone active drug itself, but also the treatment timing is crucial and we need further studies to determine the best management of medical intervention in these patients.

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