News Summary

P2-209: Rosiglitazone does not harm bone healing if combined with metformin in rats

Taking the diabetes medications metformin and rosiglitazone together reverses the adverse effects on bone of rosiglitazone treatment alone in an experimental model, according to a new study done in rats. The results will be presented Thursday at The Endocrine Society's 91st Annual Meeting in Washington, D.C.

Both metformin and rosiglitazone are widely used in the treatment of type 2 diabetes and the metabolic syndrome, said lead author Claudia Sedlinsky, MD, of GIOMM - La Plata National University, La Plata, Buenos Aires, Argentina.

Recent research, however, shows that rosiglitazone decreases bone mineral density in healthy humans and appears to increase fractures in women with type 2 diabetes, compared with those receiving metformin or another diabetes medication.

Previously, Sedlinsky's group reported that metformin helps grow bone cells in laboratory cultures. They wanted to find out if metformin could have beneficial effects on bone healing in an animal model and to compare it with rosiglitazone.

Sedlinsky and her colleagues tested four groups of rats that had a small hole in a bone. One group of rats received only metformin in their drinking water, a second group got only rosiglitazone, a third group received both medications and the last group—the controls—received plain water with no drug (placebo). After 30 days of treatment, the researchers removed the injured bone from the animals and studied it for evidence of new bone formation.

As expected, metformin increased bone healing and rosiglitazone decreased bone healing compared with placebo (no treatment). However, in the rats that received combined treatment, metformin completely reversed the ability of rosiglitazone to inhibit new bone formation, the authors found. Bone healing was similar to that observed in control rats.

Further investigations are needed to know whether these results can translate to humans, Sedlinsky stressed.

"This important finding may lead to further investigations about how to treat patients with anti-diabetic drugs while avoiding potential harm to their bones," she said.

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