PCSK9 Inhibitor Approval: *A New Era in Lipid Management?*


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On July 24, the Food and Drug Administration approved the injectable proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitor alirocumab, also known as Praluent.[1] Another PCSK9 inhibitor, evolocumab, has also recently gained approval under the trade name Repatha.[2]

PCSK9 inhibitors, a class of monoclonal antibody designed to reduce the degrading effect of PCSK9 particles on low-density lipoprotein (LDL) receptors in the liver, have shown LDL-C reductions by 45% or more in Phase Three clinical trials.[3] These drugs, administered subcutaneously twice per month, provide an important alternative for patients intolerant of HMG-CoA reductase inhibitors (statins), currently the primary treatment option for hyperlipidemia. In addition to patients intolerant of statin therapy or otherwise unable to reach target lipid levels, individuals with heterozygous familial hypercholesterolemia (FH), [4] a genetic disorder characterized by the severe elevation of LDL-C, also qualify for treatment with alirocumab.[5] Unlike alirocumab, the FDA has approved a large-dose monthly application of evolocumab to treat homozygous FH.[6] Apart from PCSK9 inhibitors, other recently approved non-statin cholesterol-lowering drugs offered at the Preventive Clinic of the Heart Group of LG Health have received FDA approval for the exclusive treatment of homozygous familial hypercholesterolemia (a rare disease that can cause vascular disease in the teens and twenties), excluding a great number of patients in need of greater LDL reductions or non-statin pharmaceuticals.[7]

The Preventive Cardiology and Lipid Apheresis Clinic of LG Health has participated in ongoing Phase Three trials investigating alirocumab and other PCSK9 inhibitors for over two and a half years. These trials, such as ODYSSEY Outcomes, have provided the evidence necessary for approval of PCSK9 inhibitors and have helped revolutionize lipid treatment for the 21st century. Praluent and Repatha, injectable biological agents, should primarily be prescribed by lipid specialists familiar with their mechanisms and potential side effects.

Praluent has already acquired notoriety in the public arena for its price of over $14,000 per year. [8] Despite some predictions that Repatha will introduce competition that will lower the price of PCSK9 inhibitors, Amgen has also priced its product at approximately $14,000 per year.[9] Although both companies have indicated their willingness to make the drug available to those unable to afford it, the prohibitive cost has fueled an ongoing debate over the pricing model for new pharmaceuticals. The Pennsylvania General Assembly recently introduced a bill mandating full disclosure of costs related to pharmaceutical sales in an effort to hold the industry accountable for such expensive therapies, although there appears little consensus on balancing the rights of pharmaceutical patent holders with the needs of patients for costly drugs.[10]

Although they have not yet shown long-term improvement in cardiovascular outcome measurements, PCSK9 inhibitors show great promise in improving the health of hyperlipidemic patients by significantly lowering elevated LDL-C levels. As a partner in clinical research on alirocumab and other PCSK9 inhibitor drugs, Lancaster General Health has played a part in advancing the frontier of lipid treatment and improving local and global health.

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