Between the lines! From clinical trials to real practice: PCSK9 inhibitor

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Appropriate management of dyslipidemia is one of the main strategies to reduce the risk of cardio and cerebrovascular events. Recently, we faced a new and big changes in the management of dyslipidemia over the era of statin. In this session, we will discuss about the Inhibitors of proprotein convertase subtilisin/kexin type 9 (PCSK9) which are a new class of therapeutic agents that have shown promising results in recent clinical trials.

A mutation in PCSK9 was discovered in French families with autosomal dominant familial hypercholesterolemia by gain-of-function mutations in PCSK9. However, of particular interest is that loss-of-function mutations in PCSK9 are characteriazed by very low plasma levels of LDL-cholesterol and apoB. Together with the understanding the biological activity of PCSK9 in lipid metabolism, many researchers have tried to develop inhibitors of PCSK9 and the a rapid steps forward were taken during the last one and half decades.

Until now, two PCSK9 inhibitors were approved by US Food and Drug Administration: alirocumab and evolocumab. Alirocumab has shown the efficacy to reduce LDL-cholesterol by 62% in patients at high risk for cardiovascular events who had LDL cholesterol level of 70mg/dL or more and were receiving treatment with statins at the maximum tolerated dose. Post hoc analysis, the rate of cardiovascular events was reduced by adding alirocumab. Evolocumab, which is another PCSK9 inhibitor also revealed the efficacy to reduce LDL-cholesterol by 61% during 1 year of therapy and also reduced the incidence of cardiovascular events in a prespecified but exploratory analysis.

The emerging new therapeutic options for the patients who have unmet need to reduce LDL-cholesterol is very good news. However, there are several concerns to prescribe the novel agents in our real world clinical practice and in this session we will discuss about the concerns.