Introduction:
The evidence for penta-therapy for hyperlipidemic severe acute pancreatitis (HL-SAP) is anecdotal. The purpose of our study is to evaluate the efficacy of penta-therapy for HL-SAP in a retrospective study.

Methods:
Retrospective study between January 2007 and December 2016 in a hospital intensive care unit. HL-SAP patients were assigned to conventional treatment alone (the control group) or conventional treatment with the experimental protocol (the penta-therapy group) consisting of blood purification, antihyperlipidemic agents, low-molecular-weight heparin, insulin, covering the whole abdomen with Pixiao (a traditional Chinese medicine). Serum triglyceride, serum calcium, APACHE II score, SOFA score, Ranson score, CT severity index, and other serum biomarkers were evaluated. The hospital length of stay, local complications, systematic complications, rate of recurrence, overall mortality, and operation rate were considered clinical outcomes.

Results:
63 HL-SAP patients received conventional treatment alone (the control group) and 25 patients underwent penta-therapy combined with conventional treatment (the penta-therapy group). Serum amylase, serum triglyceride, white blood cell count, C-reactive protein, and blood sugar were significantly reduced, while serum calcium was significantly increased with penta-therapy. The changes in serum amylase, serum calcium were significantly different between the penta-therapy and control group on 7th day after the initiation of treatment. The reduction in serum triglyceride in the penta-therapy group on the second day and 7th day were greater than the control group. Patients in the penta-therapy group had a significantly shorter length of hospital stay.

Conclusion:
This study suggests that the addition of penta-therapy to conventional treatment for HL-SAP may be superior to conventional treatment alone for improvement of serum biomarkers and clinical outcomes.