Plasmapheresis Prior to Omalizumab Administration in a 15-Year-Old Boy with Severe Asthma and Very High IgE Levels: Sustained Effect Over 2 Years.

Abstract:
Anti-IgE therapy with omalizumab is an innovative therapy option in patients with severe allergic asthma. However, many patients are excluded from this treatment due to very high serum IgE levels which lie above the weight-dependent cut-off for a reasonable omalizumab administration (700 kU/l). We sought to evaluate whether a preceding plasma exchange is suitable to establish the starting basis for a subsequent anti-IgE therapy in a 15 year-old boy with steroid-resistant unstable allergic asthma whose pretreatment serum IgE levels ranged between 3 000 and 8 000 kU/l. Our aim was to create a period with relatively low IgE serum concentrations, which could be overridden by a high dose of omalizumab. Three sessions of plasmapheresis were performed and 3×3 000 ml plasma were exchanged against albumin solution. We removed an absolute amount of 8 650 kU total IgE. During plasmapheresis, serum IgE levels markedly declined and fell below 500 kU/l. Immediately after the third plasma exchange, we started omalizumab therapy. As expected, total IgE levels began to rise again upon cessation of plasmapheresis, and after 2 months the pre-treatment values were reached. In contrast, serum concentrations of free IgE remained stable on a level of about 80 kU/l during the whole observation period. During this period, the boy
displayed a considerable improvement of asthma control and an increase in quality of life. In addition, his previously poor lung function normalized. Plasmapheresis prior to omalizumab administration is suitable to temporarily reduce grossly elevated serum IgE levels and might facilitate anti-IgE therapy in selected patients previously considered not suitable for this therapy.