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On-Line Haemodiafiltration versus Haemodialysis: Stable Haematocrit with Less Erythropoietin and Improvement of Other Relevant Blood Parameters.

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Background: Controlled randomised studies to prove improved cardiovascular stability and improved anaemia management during on-line haemodiafiltration (oHDF) are scarce. **Methods:** 70 patients were treated with both haemodialysis (HD) and oHDF in a cross-over design during 2 x 24 weeks at a dialysis dose of $eKt/V \geq 1.2$. Patients randomised into group A started on HD and switched over to oHDF, whereas patients in group B began with oHDF and were treated with HD afterwards. Intradialytic morbid events (IME), such as symptomatic hypotension or muscle cramps, were noted in case of appearance. Blood parameters reflecting anaemic status, phosphate status, lipid metabolism, oxidative stress, and accumulation of advanced glycation end products were recorded either monthly or at the end of each study phase. **Results:** The mean incidence of IME was 0.15 IME per treatment, and there was no statistical difference between oHDF and HD. A higher haematocrit (oHDF 31.5% vs. HD 30.5%, $p < 0.01$) at a lower erythropoietin dose (oHDF 4,913 vs. HD 5,492 IU/week, $p = 0.02$) was found during oHDF, when the sequence of HD and oHDF had not been taken into account. For the study groups, the results were less distinct: in group A, a higher haematocrit (HD 30.4% vs. oHDF 32.0%, $p < 0.01$) at a comparable erythropoietin dose (HD 5,421 vs. oHDF 5,187 IU/week, ns) was observed during oHDF, whereas in group B an identical haematocrit (oHDF 30.8% vs. HD 30.7%, ns) was achieved at a reduced erythropoietin dose (oHDF 4,622 vs. HD 5,568 IU/week, $p < 0.01$). During oHDF, lower levels of free and protein-bound pentosidine and of serum phosphate were found. **Conclusion:** In contrast to other studies, no benefit regarding cardiovascular stability for oHDF was found, but oHDF could well offer a potential benefit regarding anaemia correction, inflammation, oxidative stress, lipid profiles, and calcium-phosphate product. Copyright (c) 2006 S. Karger AG, Basel.

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