

Mechanical haemolysis in dialysis today

Perspective

Haemolysis

It is a severe complication of Hemodialysis. In earlier decade's reasons of Haemolysis by high Temperature or by inadequate Conductivity of Dialysis Fluid had been eliminated completely by improved Technology of the Monitors. In smaller numbers (up to $1:2.5 \times 10^7$) Haemolysis does appear today because of Mechanical Reasons. However, these Patients are seriously ill due to the mode of treatment (!).

The course

During a Routine Dialysis session the condition of the Patient may change e.g. occurrence of pain in the upper abdomen, elevation of Blood Pressure, perhaps vomiting, or even no specific symptoms, respectively. Frequently, the Dialysis will be finished ahead of schedule, the staff will fail to give further information's, while the Patient will be admitted to the Hospital (> ICU, Patients in bad condition). The results of the first Blood Sampling show the Haemolysis. When this Diagnosis is established, the Extracorporeal Unit of this treatment has been disposed long ago. Sometimes, there may be life-threatening Haemolysis with absolutely no Laboratory Results because of haemolytic Serum. Further along the course elevations of hepatic and pancreatic enzymes will be registered as well as of Bilirubin and Icterus.

Causes of this mechanical haemolysis

It's either Kinking of the Bloodline (by un-professional handling of the staff) or Total Clotting of the Dialyzer. Nowadays, many of the experienced nurses have been retired. The second reason is the relation between numbers of nurse to numbers of patients these days.

Prevention of mechanical haemolysis

It is very simple: The Measurement of the Systemic Pressure, this is the Pressure at the entry into the Dialyzer at the Blood Compartment (another name for this is Blood Pressure Entry, BPE). This alone does stop the treatment immediately, when there is a critical mechanical Resistance reached. A good part of the Dialysis Monitors of today uses this important Safety Device.

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Why I write this down?

In the US there are many older Monitors used in the Every-Day-Dialysis without Systemic Pressure Measurement. This I will accept, as these monitors had admitted long ago. But this is not the problem. The problem is the following: A big Dialysis Provider has bought a bigger number of new monitors from Overseas. According to the request of the Provider, the Manufacturer as an accomplice had eliminated this Safety-Device (!). In the end, the FDA Dep. Medical Devices licensed this handling! This chain policy, *I will never accept!*

The perspective

This eliminated Safety-Device of the Systemic Pressure should be re-installed into these Monitors from Overseas in order to prevent severe complications of Mechanical Haemolysis. This context will also transacted at the OMICS-Congress in Baltimore. But to this context, there will be no discussion. In case when the FDA ignores this theme, this may be a matter of interest to the Liability Insurances.

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Conflict of interest

The author declares no conflict of interest.