M O N D O: MONitoring Dialysis Outcomes

Body composition and EPO resistance in hemodialysis patients Results from an international MONDO consortium cohort

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Introduction and aims

Response to erythropoiesis stimulating agents (ESA) in hemodialysis (HD) patients is variable and modified by several factors, such as iron status, inflammation, dialysis dose, and BMI. We aim to identify the association between body composition measured by bioimpedance spectroscopy (BCM, Body Composition Monitor, Fresenius) and ESA response in HD patients.

Methods

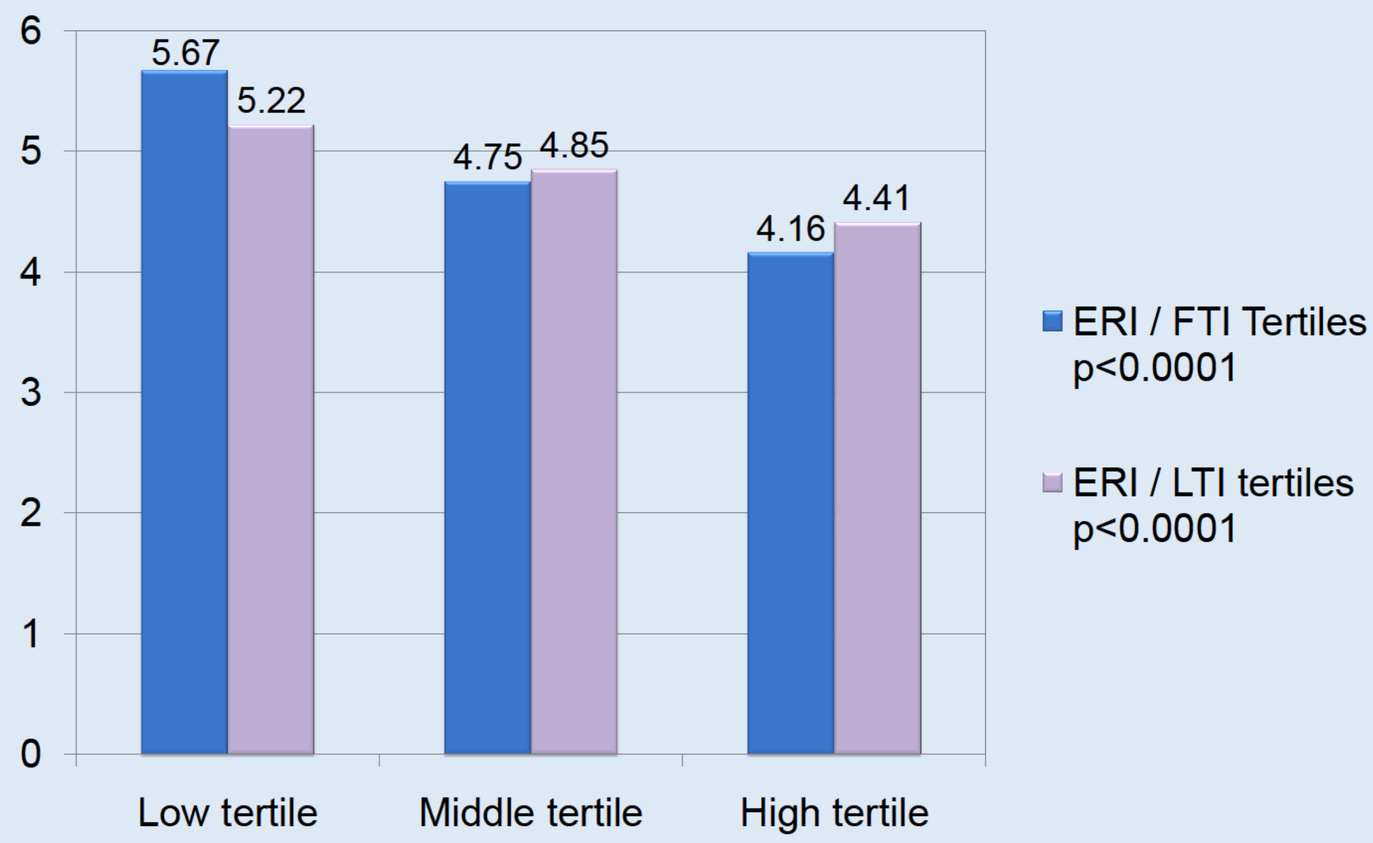
MONitoring Dialysis Outcomes [MONDO] consortium consists of HD databases from multiple providers across the word[1, 2]. This cross-sectional observational study was conducted in European MONDO patients in who body composition has been assessed using BCM. Patients were stratified in tertiles of lean tissue index (LTI = lean tissue mass/height²), and fat tissue index (FTI = fat tissue mass/height²), respectively. ESA resistance index (ERI) was calculated as darbopoietin dose (µg/week) * 100 / weight (kg) / Hb level (g/dL).

We also explored the association between body composition and some inflammatory markers (as neutrophil to lymphocyte ratio, NLR and C reactive protein, CRP).

Results

We studied 9,848 patients, mean age 63.5 years, male prevalence 57%, and gender white 98%.

There was an inverse association between LTI and FTI with ERI:



While there was no correlation between FTI and inflammatory markers, these were inversely related to LTI:

Body composition	Variable	Tertile			p-value (ANOVA)
		Low	Middle	High	
FTI (kg/m²)	NLR	3.36	3.33	3.25	NS
	CRP (mg/l)	13.7	15.2	15.7	NS
LTI (kg/m²)	NLR	3.55	3.25	3.12	< 0.0001
	CRP (mg/l)	18.6	13.8	12.2	< 0.0001

Conclusion

Response to ESA in HD patients appears to be modified by body composition (LTI and FTI), with inflammation being a potential link, as indicated by an inverse relationship between LTI and inflammatory markers.

1. Usvyat et at, Blood Purif. 2013;35(1-3):37-48. doi: 10.1159/000345179
2. von Gersdorff et al, Blood Purif 2013;36:165-172 (DOI:10.1159/000356088)

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