IDK® Kynurenine

Detecting high risk

for

major adverse kidney events (MAKE)

IDK® Kynurenine ELISA

Competitive ELISA for quantitative determination of KYN (L-kynurenine) in human serum, plasma, and dried blood samples

- Basics: L-kynurenine is a **player in vasodilation**
- Research: L-kynurenine **predicts kidney events**
- Clinical diagnostics: High circulating L-kynurenine values measured before contrast media administration indicate complications such as death, dialysis or long-standing creatinine increase

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L-kynurenine is the main product of the degradation of **L-tryptophan** catalysed by **indoleamine 2,3-dioxygenase (IDO)**, and it is an up-coming and highly relevant marker in vascular research.

Kynurenine is a strong endothelium-derived vasodilator, which is highly increased in cardiovascular diseases, when NO formation is disturbed[1,2]. The hypothesis is as follows: Physiologically, IDO can be inhibited by NO. In inflammation, endothelial NO synthase (eNOS) is disturbed and NO production is limited. In this state, IDO is induced and L-kynurenine levels increase, which indicates a massively impaired vascular function[3,4].

This is particularly critical when patients undergo contrast media administration. In our study, we found that patients with a circulating kynurenine level higher than 3.5 µmol/L have a high risk of experiencing a major adverse kidney event (MAKE) *(see Figure 1)*. A ROC analysis indicates a very good discriminatory performance of kynurenine with an AUC of 0.84 *(see Figure 2)*.

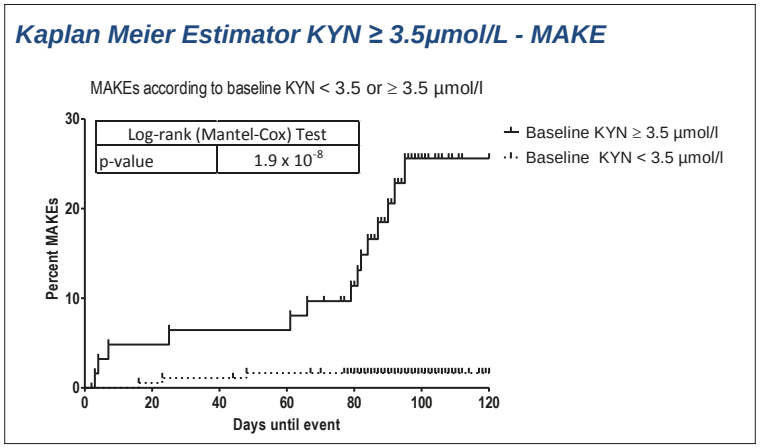

Fig. 1: *Percentage of major adverse kidney event (MAKE) (death, dialysis or a doubling of plasma creatinine) within 120 days after contrast media administration. 245 Patients were included into the study. Figure from Reichetzeder et al., 2016[5].*

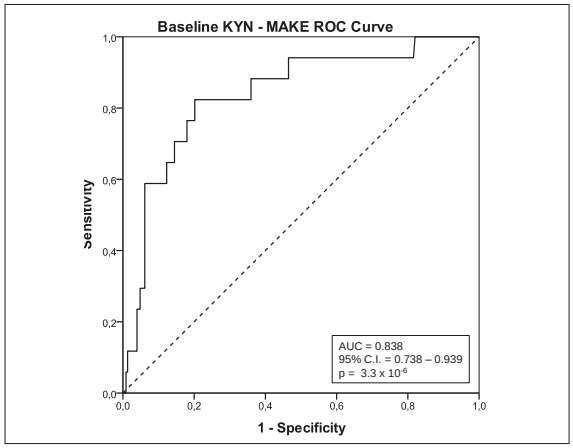

Fig. 2*: ROC curve analysis for detection of MAKE using measurement of kynurenine levels in serum. The cut-off value was KYN > 3.5 mol/L. The area under the ROC curve was 0.838 (95 % C.I. = 0.738 - 0.939, p < 3.3 x 10-6). Figure from Reichetzeder et al., 2016[5].*

In summary: Serum kynurenine is a prognostic marker for adverse outcomes after contrast media administration.

IDK® Kynurenine	
Matrix	EDTA plasma, serum, dried blood samples
Sample volume	25 µL (plasma, serum) 50 µL (dried blood samples)
Test principle	ELISA
Cat. No.	K 7728

Related Assays:

IDK® Kynurenine high sensitive ELISA (KR3728) *(RUO)*
IDK® Tryptophan ELISA (K 7730)
IDK® Tryptophan high sensitive ELISA (KR3730) *(RUO)*
IDK® IDO ELISA (KR7727) *(RUO)*
IDK® IDO activity ELISA (K 7726)

CE US: all products: Research Use Only. Not for use in diagnostic procedures.

Literature:

1 Fujigaki H et al. (2006) Nitration and inactivation of IDO by peroxynitrite. *J Immunol* 176: 372–379.

2 Sulo G et al. (2013) Neopterin and kynurenine-tryptophan ratio as predictors of coronary events in older adults, the Hordaland Health Study. *International Journal of Cardiology* 168(2): 1435–1440. doi:10.1016/j.ijcard.2012.12.090

3 Pedersen ER et al. (2013) Urinary excretion of kynurenine and tryptophan, cardiovascular events, and mortality after elective coronary angiography. *European Heart Journal* 34: 2689–2696. doi:10.1093/eurheartj/eht264

4 Eussen SJPM et al. (2015) Kynurenines as predictors of acute coronary events in the Hordaland Health Study. *International Journal of Cardiology* 189: 18–24. doi:10.1016/j.ijcard.2015.03.413

5 Reichetzeder C et al. (2016) Serum Kynurenin als prognostischer Marker für Langzeit-Outcome nach Kontrastmittel-Koronarangiographie. *Poster 137 presented at Deutscher Kongress für Nephrologie*, September 10–13, 2016, Berlin

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