



Did the mRNA cutoff copy numbers in peripheral blood influence their relationship with prognosis in stage I-III colorectal cancer patients?

Yong Liu ^{1,4*}, Jian-Guo Feng ², Jun Qian ¹, Yu-Ping Zhu ¹, Hai-Xing Ju ¹, De-Chuan Li ¹, Li-Ming Sheng ³, Ulrich Keilholz ⁴

1 Departments of Surgical Colorectal; 2 Laboratory of Molecular Biology, Zhejiang Cancer Research Institute, 3 Department of Radiotherapy, Zhejiang Cancer Hospital, Hangzhou, Zhejiang Province, China; 4 Charité Comprehensive Cancer Center, Charitéplatz 1, Berlin, Germany;

* Correspondence Author: Liu Yong Tel: +49-017680828417; E-mail: liuyong@zjcc.org.cn



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OBJECTIVES

Guanylyl cyclase C (GCC) and Cytokeratin 20(CK20) have specifically and stably expressed in primary and metastatic colorectal cancer (CRC) cells and have been used to identify circulating tumor cells(CTCs) in peripheral blood in CRC patients. The number of CTCs has proven to be strong predictor of progression-free survival and overall survival(OS) in advanced and metastatic CRC patients. While few projects have designed to investigate relationship of CTC relative mRNA cutoff numbers with patients' prognosis in early stage CRC patients.

METHODS

GCCmRNA and CK20mRNA in peripheral blood were detected by qRT-PCR from 160 CRC patients with stage I-III, based on different cutoff mRNA levels(from 0 to 10000 copies/ μ l), to investigate their relationship with CRC patients' distant organ metastasis and long term survival.

RESULTS

Univariate Cox-regression analysis

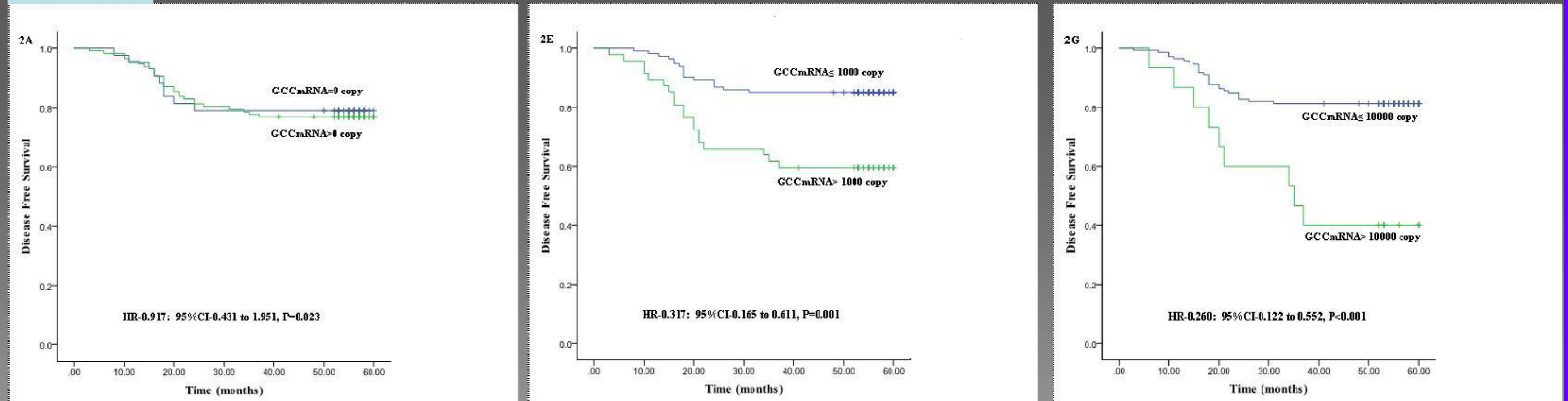
	DFS		OS	
	HR	95 % CI	HR	95 % CI
GCCmRNA	0.317	0.165-0.611	0.163	0.063-0.425
CK20mRNA	0.472	0.236-0.944	0.218	0.091-0.524
differentiation type	0.418	0.206-0.850	0.244	0.102-0.580
tumor emboli in vessels,	0.216	0.112-0.416	0.163	0.067-0.393
root lymph node metastases	0.158	0.072-0.349	0.119	0.046-0.312

Multivariate COX regression analysis

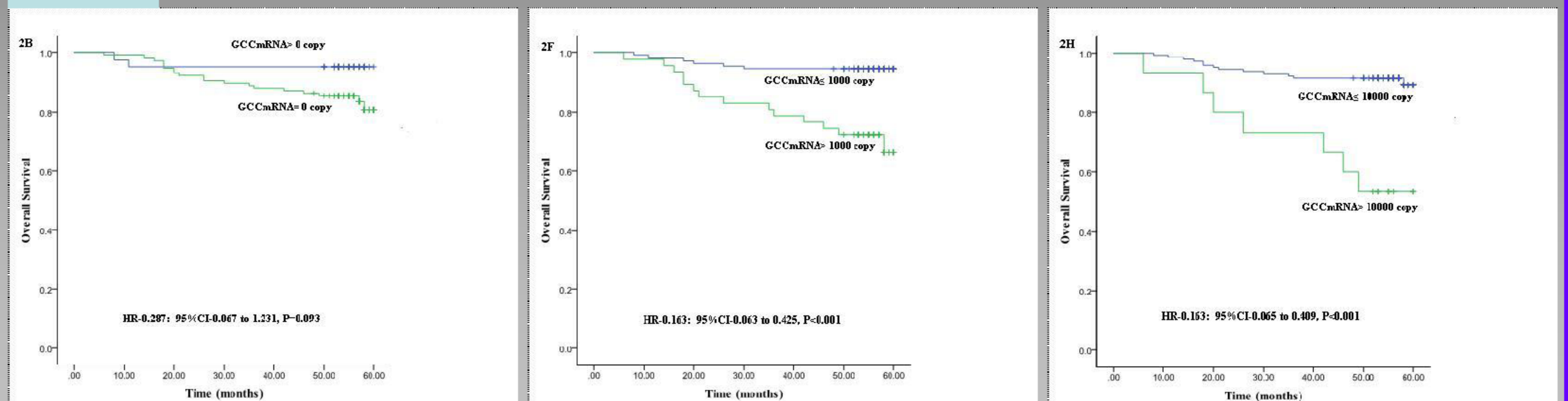
Cutoff 1000 DFS	Exp(B)	95% CI	Sig
GCCmRNA	2.071	1.024-4.187	0.043
tumor emboli in vessels	2.611	1.202-5.671	0.015
root lymph node metastases	3.033	1.262-7.290	0.013

Cutoff 1000 OS	Exp(B)	95% CI	Sig
GCCmRNA	3.541	1.230-10.194	0.019
CK20mRNA	2.961	1.122-7.815	0.028
differentiation type	4.346	1.705-11.077	0.002
root lymph node metastases	4.126	1.460-11.660	0.007

DFS



OS



Cutoff value 0

Cutoff value 1000

Cutoff value 10000

GCCmRNA and CK20mRNA in peripheral blood were detected in 160 colorectal patients, including 31 patients (19.4 %) with stage I, 58 patients (36.3 %) with stage II and 71 patients (44.4 %) with stage III. The significantly relationship of OS rates with GCCmRNA and CK20mRNA higher than 100 copy numbers/ μ l, disease-free survival(DFS) rates with GCCmRNA higher than 100 copy numbers/ μ l were found in our study. When based on stage stratification, DFS and OS rates were found significantly associated with GCCmRNA and CK20mRNA over baseline in stage II patients. COX multivariate statistic survival analyses showed a significant association between 1) OS and different GCCmRNA levels, CK20mRNA levels, tumor emboli in vessels, mesenteric root lymph node metastases, differentiation types and 2) DFS and GCCmRNA levels, emboli in vessels, mesenteric root lymph node metastases, CA199 levels.

CONCLUSIONS

Enumeration of mRNA in early stage CRC patients is crucial evaluation index for survival assessment and metastasis prediction. GCCmRNA over baseline in peripheral blood is significantly associated with poor prognosis in stage I-III CRC patients, especially in stage II CRC patients.

References

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