



# THE ROLE OF SERUM TUMOUR MARKERS IN THE DETECTION OF LUNG CANCER

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## AIM:

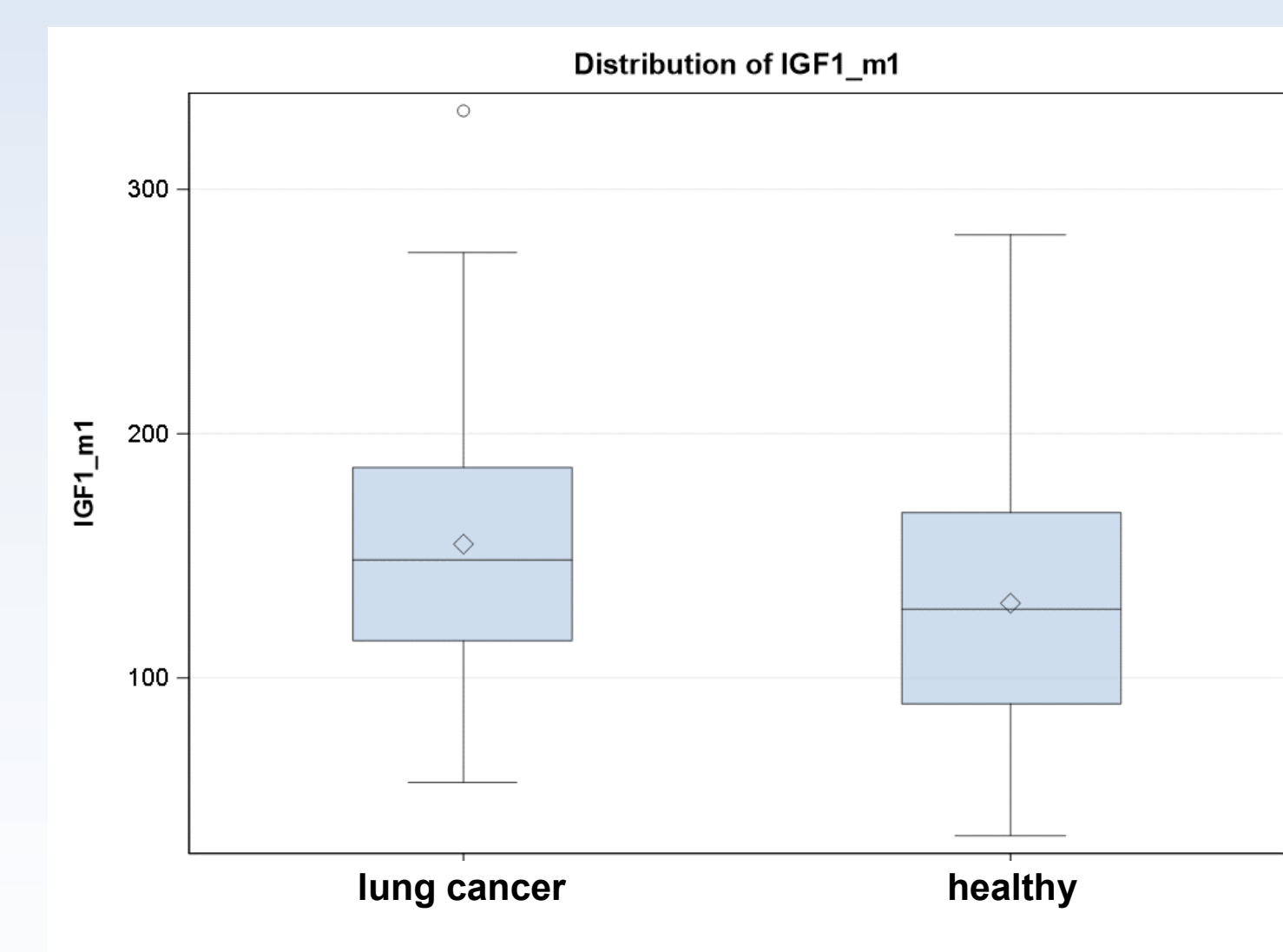
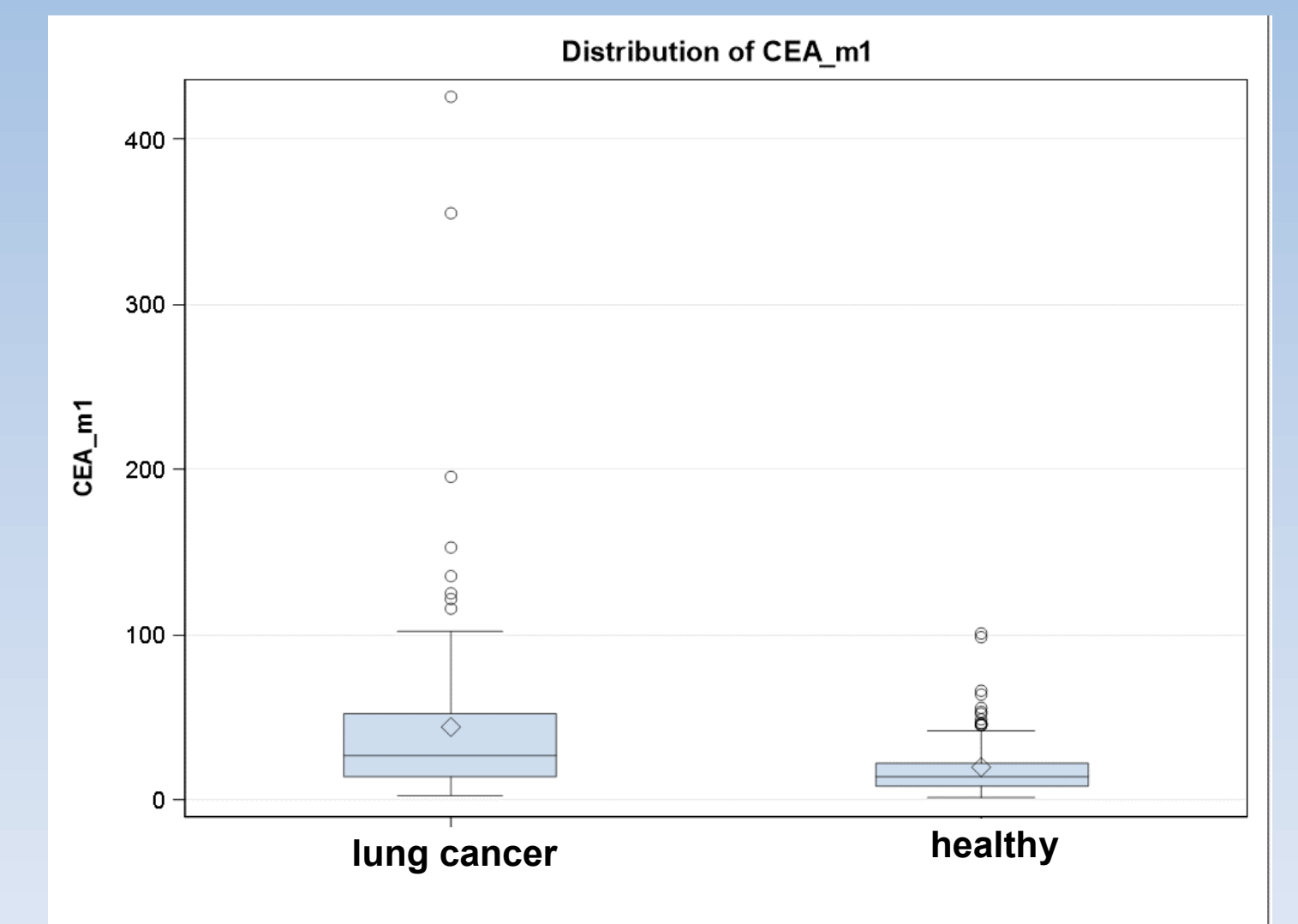
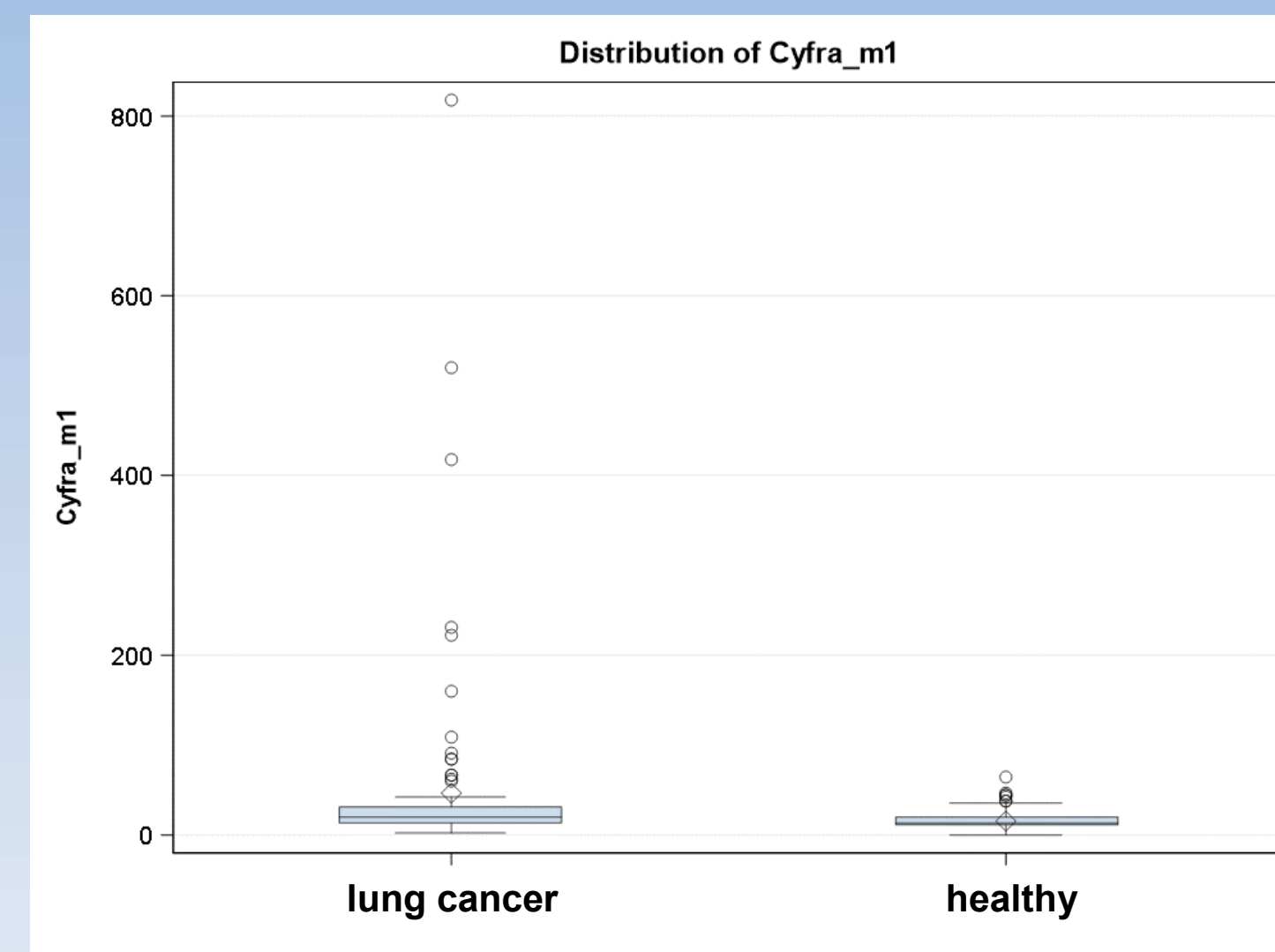
The aim of this study was to evaluate the panel of the selected biomarkers in the ability to detect lung cancer.

## PATIENTS AND METHODS:

The prospective study was conducted between April 2018 and March 2020 and included patients with operable non-small cell lung cancer. The study group consisted of 98 patients. The control group consisted of 98 healthy persons.

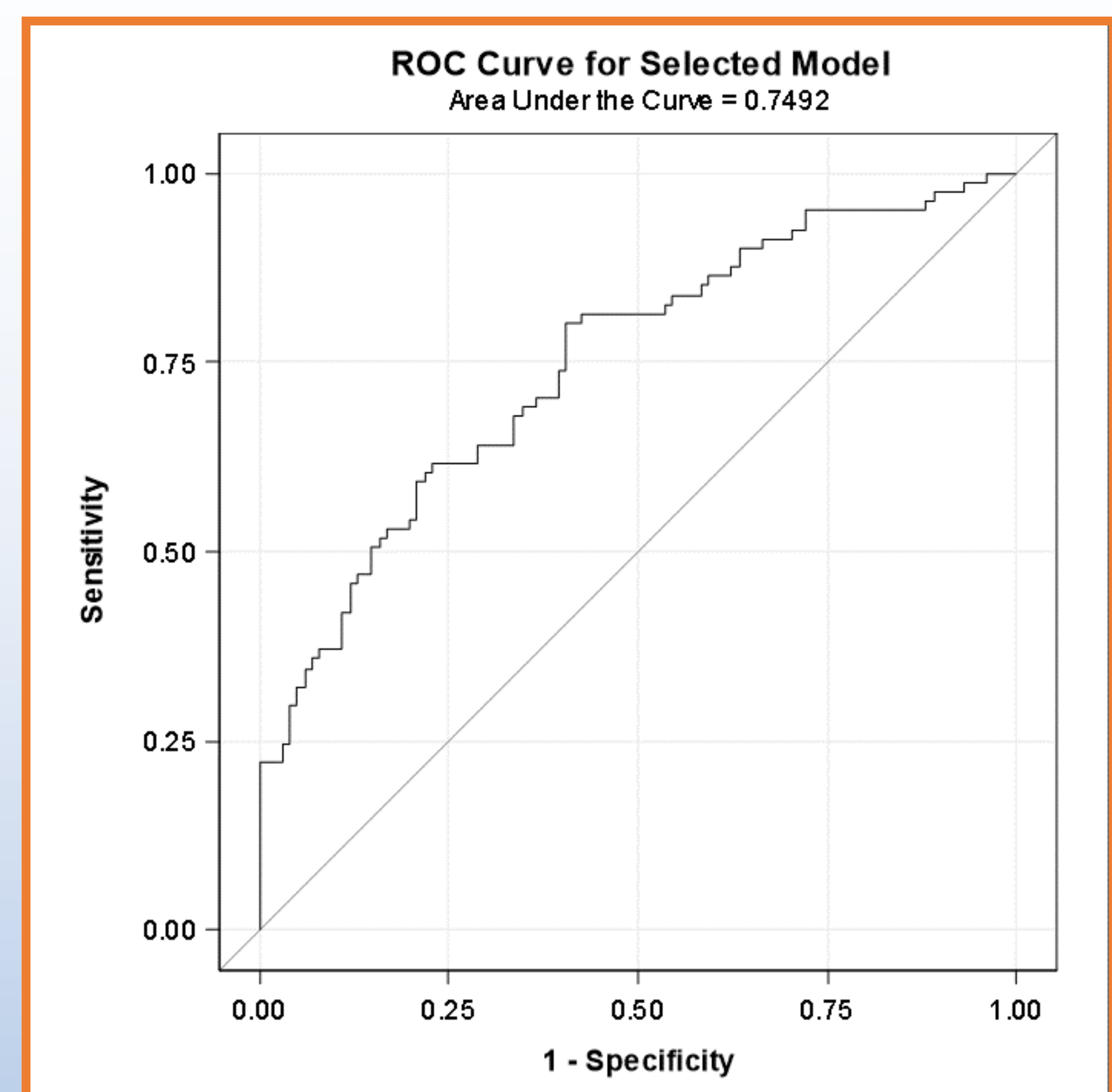
Serum levels of the following biomarkers were determined: carcinoembryonic antigen (CEA), cytokeratin fragment 18, tissue polypeptide specific antigen (TPS), cytokeratin fragment 8, 18, 19 (MonoTotal), cytokeratin fragment 19 (CYFRA 21-1), insulin like growth factor 1 (IGF-1), 25 hydroxy vitamin D (25-OH-VD), neuron-specific enolase (NSE), pro-Gastrin Releasing Peptide (proGRP). The biomarkers was assessed individually or using mutivariate analysis.

Variables	Number	Percentage (%)
<b>Gender</b>		
Male	60	61.2
Female	38	38.8
Total	98	100
<b>Median of age (years)</b>		
	68 (40-80)	
<b>Histology of NSCLC</b>		
Adenocarcinoma	49	50.0
Squamous cell carcinoma	37	37.8
Others	12	12.2
<b>Type of operations</b>		
Lobectomy	84	85.7
Bi-lobectomy	9	9.2
Pneumonectomy	5	5.1
<b>Pathological stage of the TNM classification for NSCLC</b>		
IA1	4	4.1
IA2	27	27.6
IA3	15	15.3
IB	11	11.2
IIA	4	4.1
IIB	17	17.3
IIIA	17	17.3
IIIB	3	3.1
<b>Involvement of intrathoracic LNs</b>		
N1	12	12.2
N2	4	4.1
N1+N2	8	8.1
<b>Adjuvant therapy</b>		
0	64	65.3
Chemotherapy	27	27.6
Chemotherapy + Radiotherapy	7	7.1



## RESULTS:

The best ability to detect lung cancer proved two traditional tumor markers CEA ( $p < 0.0001$ ,  $AUC = 0.6941$ ) and CYFRA 21-1 ( $p < 0.0001$ ,  $AUC = 0.6806$ ). Multivariate model selected as the third most useful biomarker IGF-1 ( $p = 0.0011$ ,  $AUC = 0.6330$ ). The multivariate model (CEA, CYFRA 21-1, IGF-1) achieved significantly the best AUC ( $p = 0.0002$ ,  $AUC = 0.7492$ ).



## CONCLUSIONS:

Traditional biomarkers for lung cancer detection are known for a long time but their sensitivity is still unsatisfactory. We proved that the use of the multivariate analysis can increase the efectivity of the lung tumors detection.

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