REM (RISK OF ENDOMETRIAL MALIGNANCY): A PROPOSAL FOR A NEW SCORING SYSTEM TO EVALUATE RISK OF ENDOMETRIAL MALIGNANCY
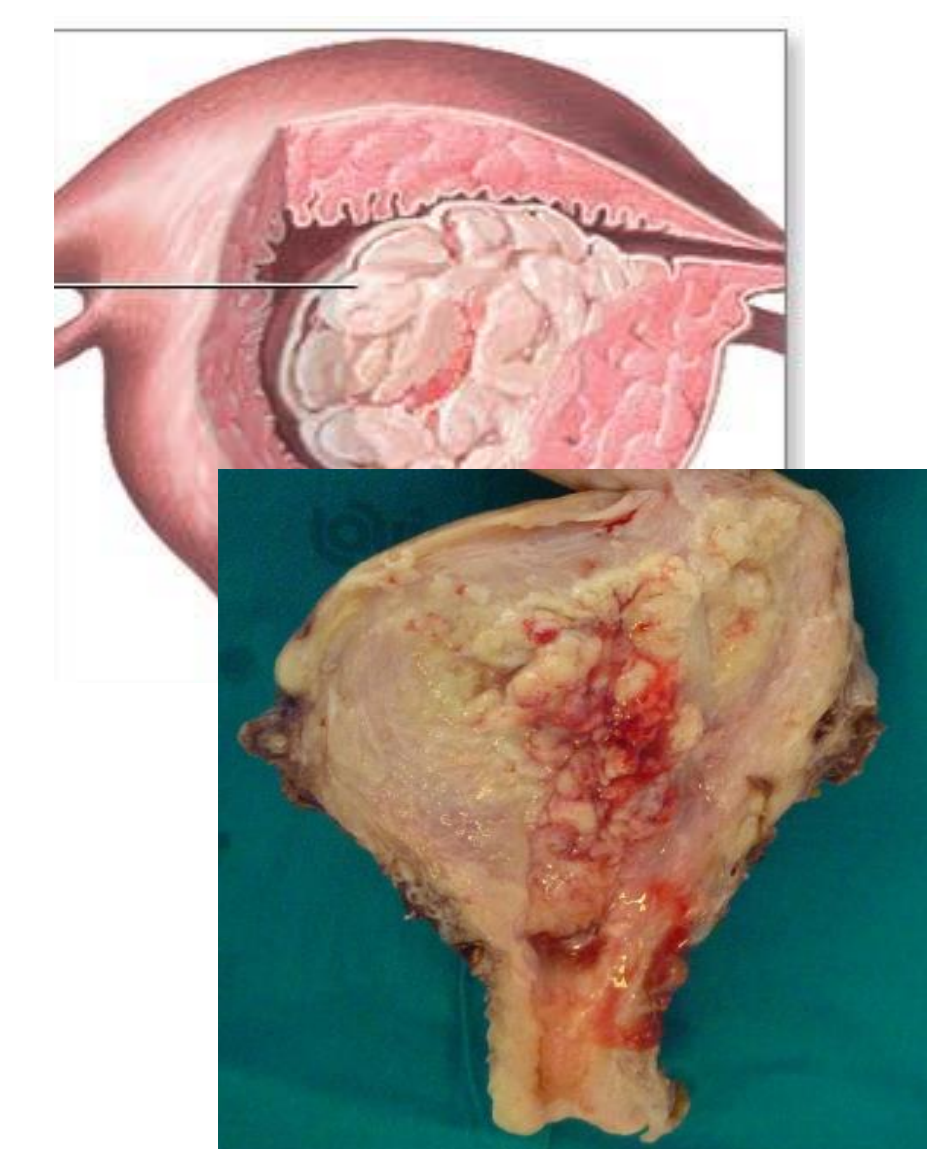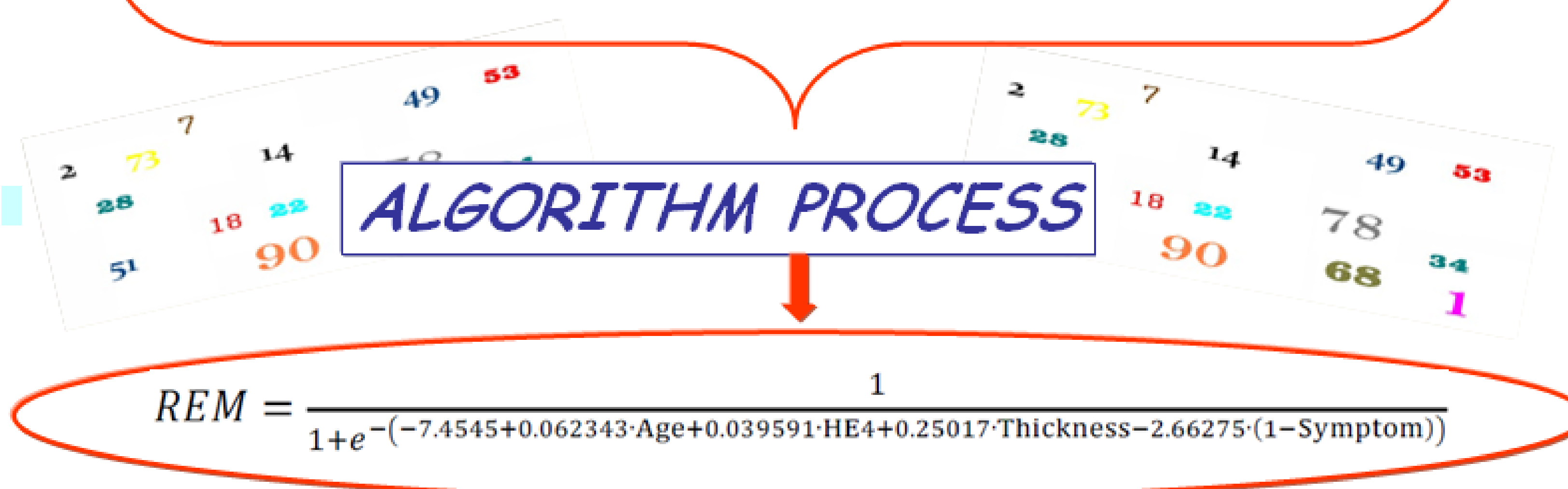
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BACKGROUND AND AIMS:

It is often difficult to distinguish a benign endometrial disease from a malignancy and tools to help physician are needed, in order to triage patients into high and low risk of endometrial cancer (EC). The purpose of this study was to obtain a predictive model to asses the Risk of Endometrial Malignancy (REM) in women with ultrasound endometrial abnormalities.

AGE + ENDOMETRIAL THICKNESS + HE4 + SYMPTOM

ALGORITHM PROCESS

$$REM = \frac{1}{1+e^{-(-7.4545+0.062343 \cdot Age+0.039591 \cdot HE4+0.25017 \cdot Thickness-2.66275 \cdot (1-Symptom))}}$$

METHODS:

Women, between 45 and 80 years, diagnosed with ultrasound endometrial abnormalities and scheduled to have surgery were enrolled on a prospective study at Department of Gynaecologic Oncology of Campus Bio-Medico of Rome. Preoperative clinical, ultrasound and laboratory features were taken into account. Logistic regression algorithm was utilized to categorize patients into low and high risk groups for EC.

RESULTS:

A total of 675 patients were considered for the analysis: 88 with EC and 587 with benign endometrial disease. We divided the patients into two groups: training set (TS) and verification set (VS). Preoperative age, symptom, HE4 levels and ultrasound endometrial thickness were found statistically significant and were included into multivariate logistic regression model in order to determine the probability to have EC. In TS, REM reported 93.3% of sensitivity and 97.1% of specificity (PPV= 0.83, NPV= 0.98, AUC=0.957, 95%CI, 0.908 to 0.984). In VS REM reported 89.3% of sensitivity and 95.4% of specificity (PPV= 0.73, NPV= 0.98, AUC=0.919, 95%CI, 0.829 to 0.970).

CUT-OFF: 0.3185

	TRAINING		VERIFICATION		TOTAL	
	MALIGNANT	BENIGN	MALIGNANT	BENIGN	MALIGNANT	BENIGN
HIGH RISK	56	11	25	9	81	20
LOW RISK	4	380	3	187	7	567
SENSITIVITY	93.3%		89.3%		92%	
SPECIFICITY	97.1%		95.4%		96%	
PPV	0.83		0.73		0.80	
NPP	0.98		0.98		0.98	

NOMOGRAM

Score REM (%)

Endometrial Thickness (mm)

Symptom (Yes, No)   HE4 (pMol/L)

Age
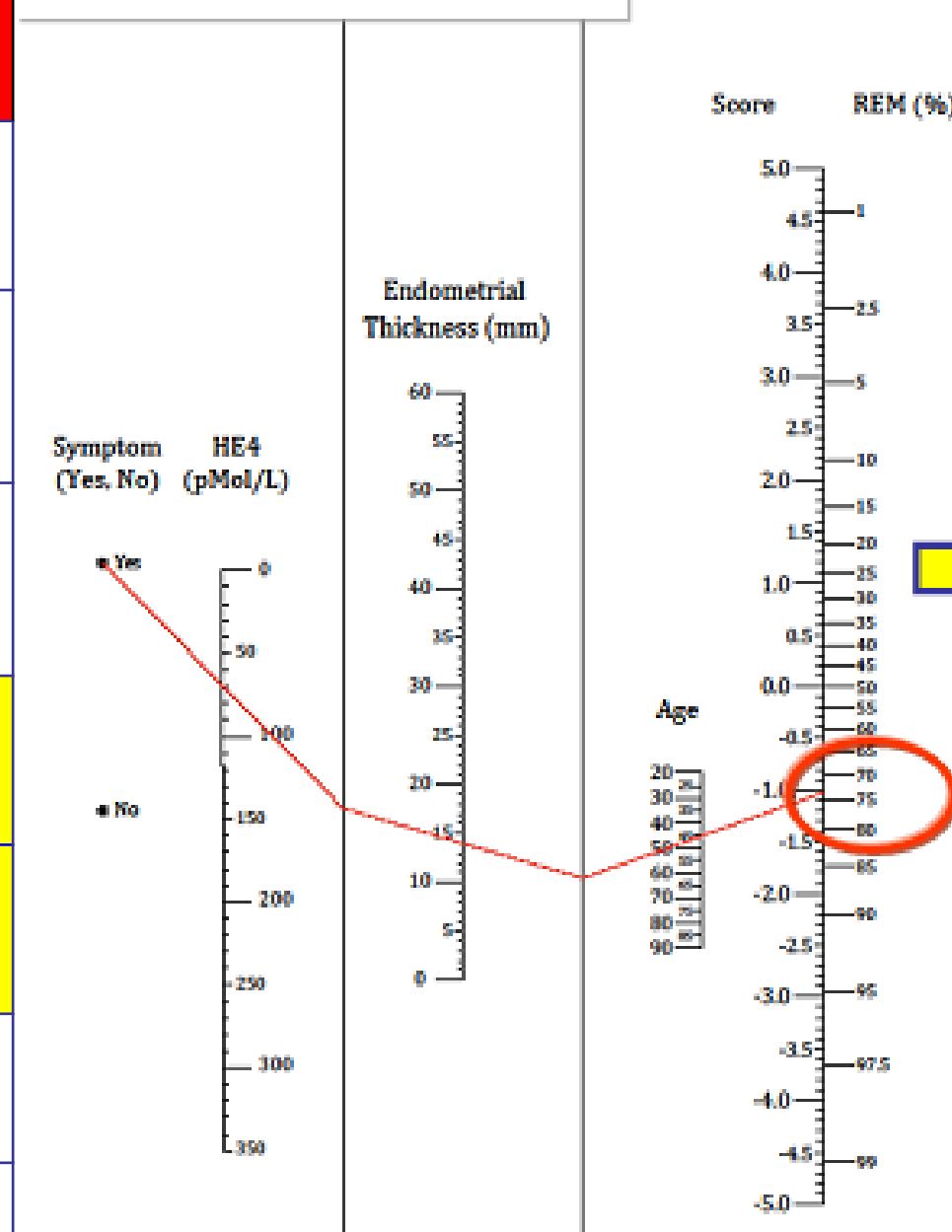
COMPUTER PROGRAM

AGE	HE4	ENDOMETRIAL THICKNESS	SYMPTOM	REM SCORE
73	104,3	20,5	Yes	0,99

EXAMPLE OF HIGH RISK PATIENT

CONCLUSION:

Our data support the use of REM to triage patients into low and high risk of EC, even if an external validation of model is needed.