

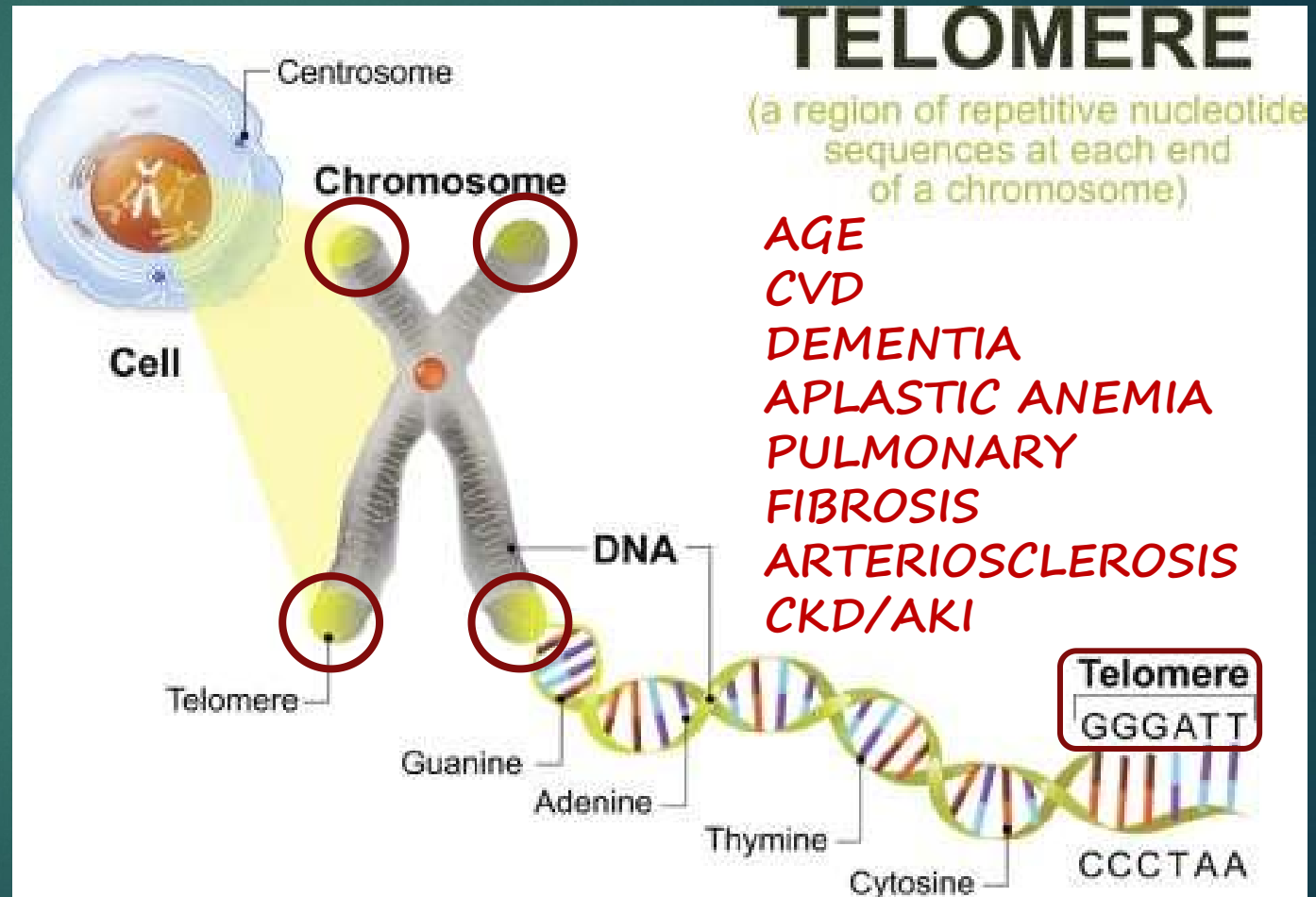
# Relation of serum magnesium (sMg) with the telomere length (TL) in hemodialysis patients

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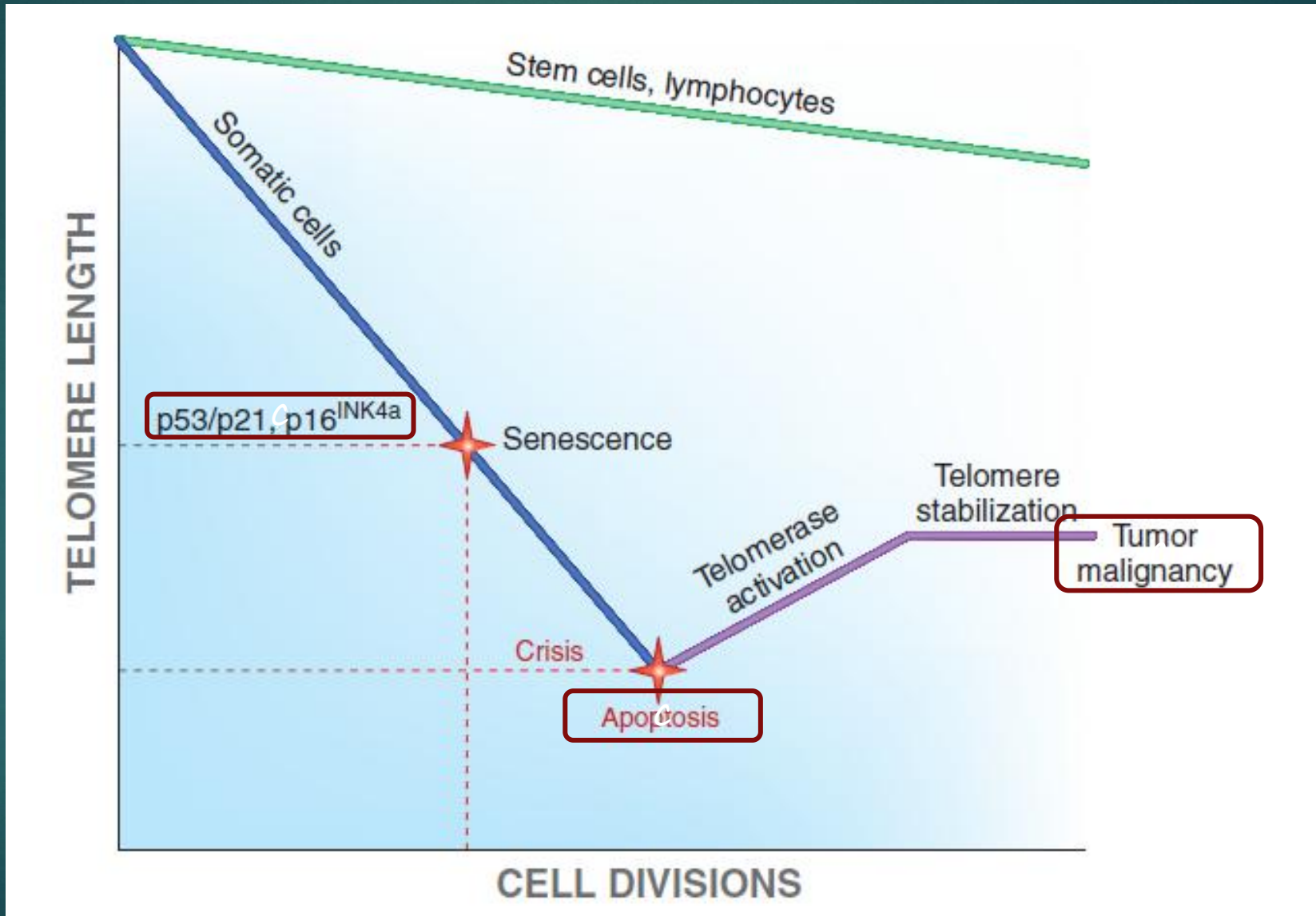
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# Telomere and chromosome

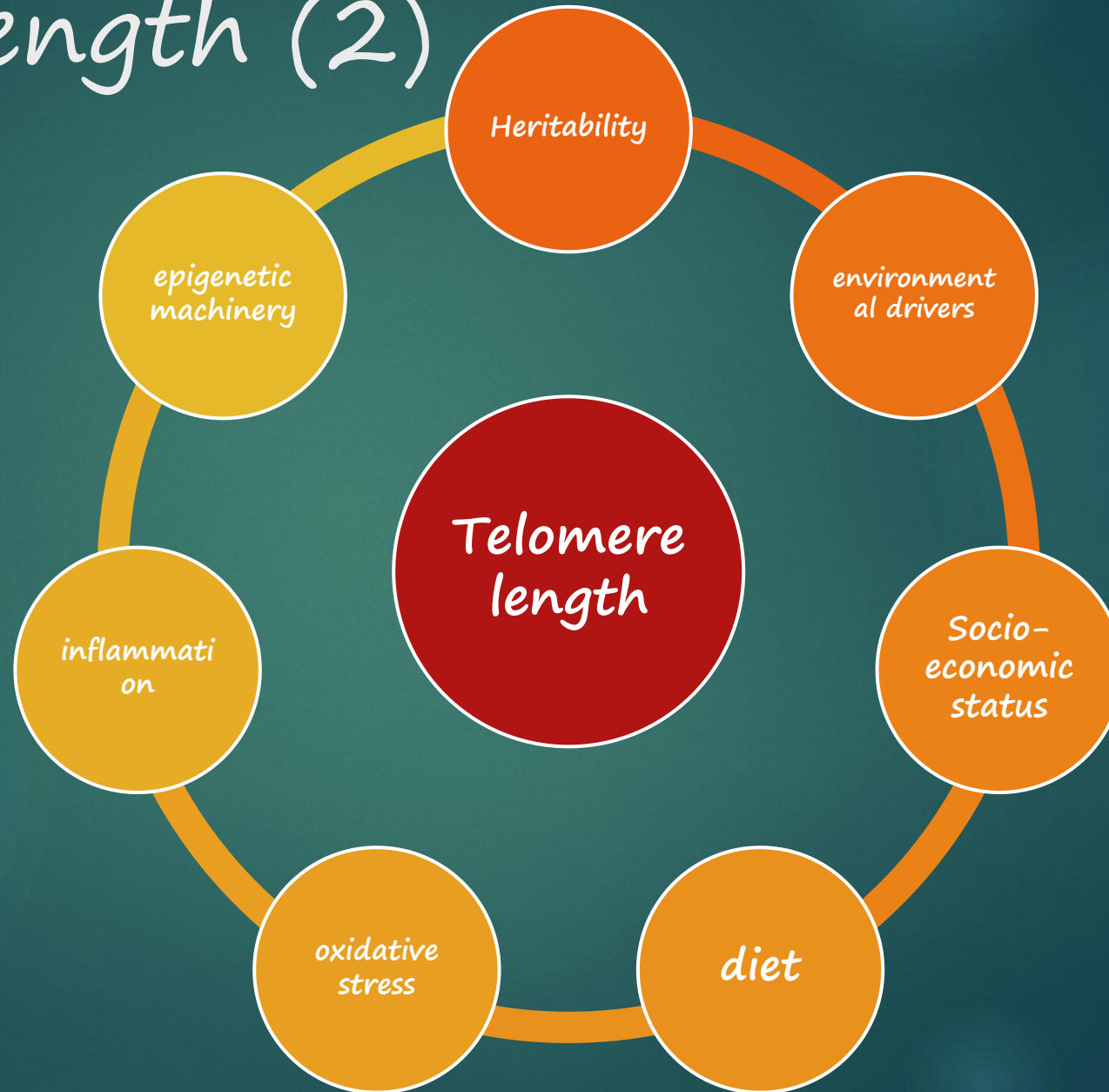
- Repetitive TTAGGG sequences at the end of chromosome, 5000 to 15,000 bp.
- The nuclear role of telomeres is to prevent chromosome ends from being identified as double strand breaks in DNA, thus limiting chromosome shortening and recombination.
- Shortens with repeated cell divisions. When too short, cells may be unable proliferate.



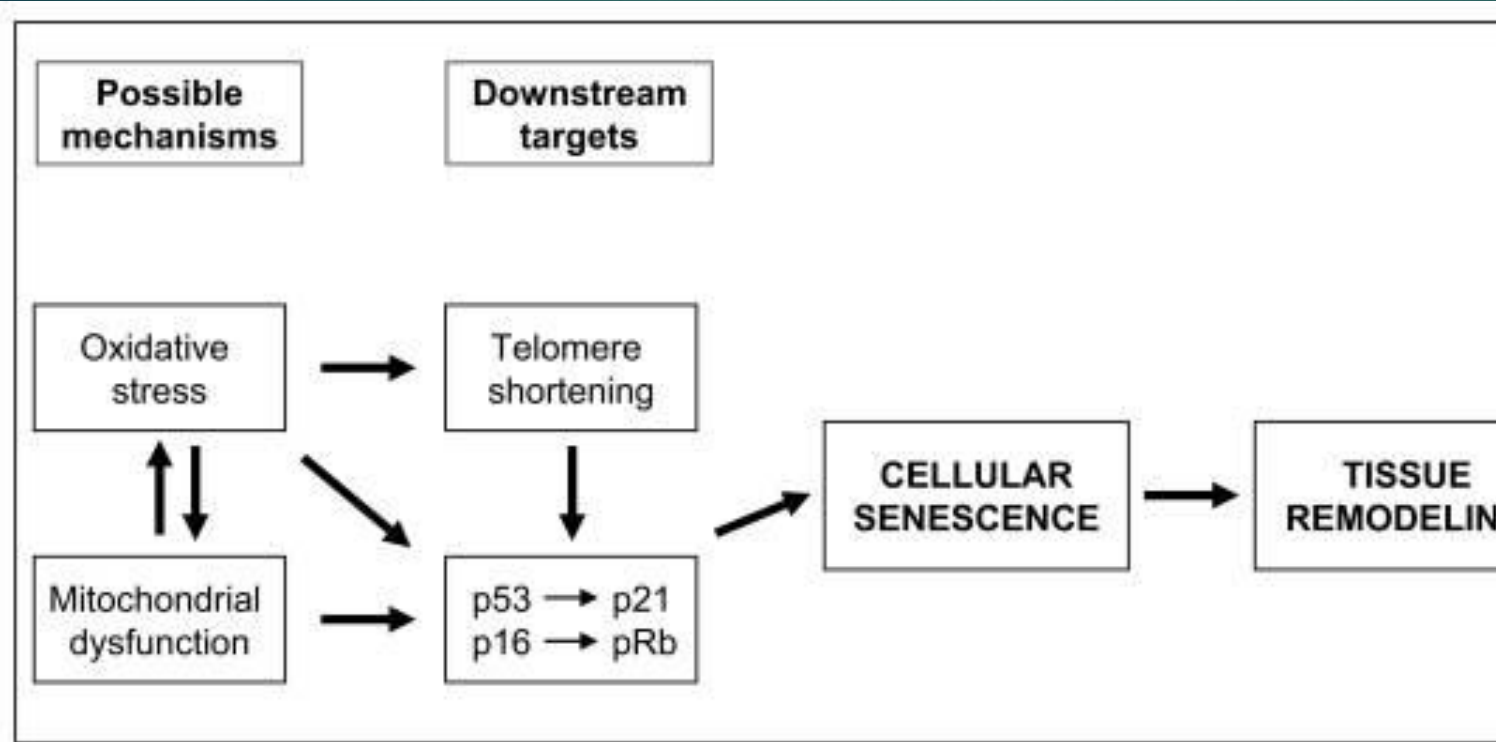
# Telomere length – cell apoptosis



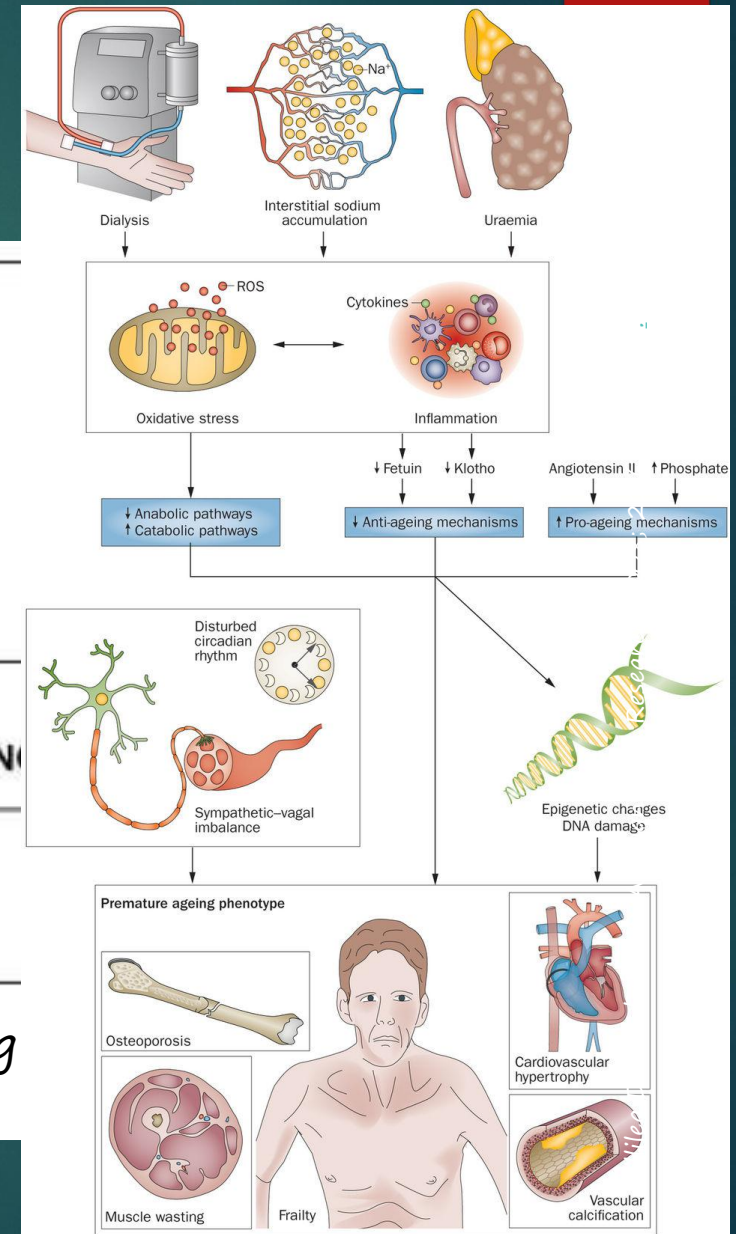
# Telomere length (2)



# Mg and aging...



Schematic of the cellular pathways that are activated during deficiency that can promote age-related diseases.



# Methods...



- 28 men
  - 18 women
- 46 pt

## Leukocyte telomere length

- Real-time PCR
- T/S

- Average value of last 3mo
  - Pre-dialysis measurement
- sMg

- TL - Continuous or discrete variable
- Increased and decreased TL
  - Median T/S (1.13)

# Results...

	ITL	DTL	P value
Age	$56 \pm 14$	$70 \pm 9$	$<0.001$
Pulse pressure (PP)	$58 \pm 14$	$68 \pm 14$	$<0.05$
Diabetes mellitus (DM)	8.7%	34.8%	$<0.05$
Periferal vascular disease (PVD)	30.4%	65.2%	$<0.05$
Serum Mg (sMg)	$2.6 \pm 0.2$	$2.3 \pm 0.3$	$<0.001$

# Results...

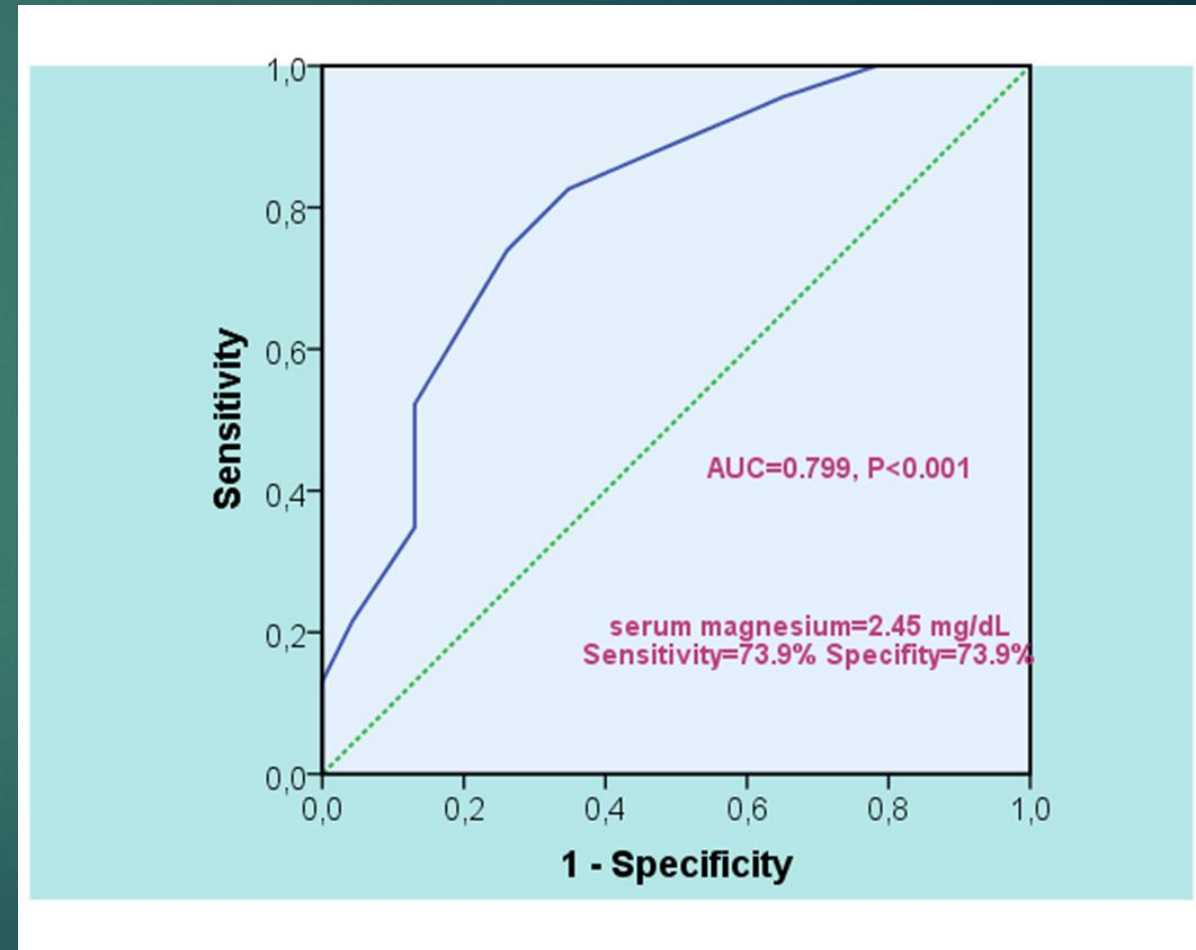
## Statistics

Multiple regression model:  
after adjustment for age, PP,  
DM, PVD:

sMg related to IMT (OR=65.6,  
p=0.032)

ROC analysis:

ideal predictive value of sMg  
2.45mg/dl –  
sensitivity/specificity for ITL  
73.9%, AUC 0.799 (p<0.001)





# Results...

## Statistics (2)

TL as continuous variable was directly related to sMg ( $r=0.454$ ;  $p<0.01$ )

### Multiple factor analysis

sMg ( $\beta=0.147$ ,  $p<0.05$ ), female and age are the main determinants of TL, explaining the 8.8% of its variance

# Discussion...

Higher sMg, age, females are related with ITL in HD patients

Can an increase in magnesium intake affect the TL and - as a result - the survival?