

Meta-analysis of children with Multiple Endocrine Neoplasia (MEN) Type 2A from 1995-2014: Impact of *RET* mutation screening on age at thyroidectomy and frequency of metastatic disease

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The authors have nothing to disclose

Take home message

Age at total thyroidectomy and metastatic medullary thyroid cancer rate decreased overall and in high risk mutations carriers. However, still 70% of high risk mutation carriers are thyroidectomised beyond recommended age of 5 years.

Background

Medullary thyroid cancer (MTC) in MEN 2A is caused by mutations in *RET*. Guidelines (2001/2009/2015) recommend prophylactic total thyroidectomy (TT) based on mutation specific risk levels (ATA 2015: high/moderate), **Figure 1**.

The aim of this study was to analyse changes of age at TT, frequency of metastatic MTC (MMTC), and frequency of TT according to guidelines since introduction of *RET* testing in 1995.

		ATA 2001 2 risk classes	ATA 2009 4 risk classes	ATA 2015 3 risk classes
Exon 8	c533		>10yrs	>10yrs
Exon 10	c609		6-10yrs	>10yrs
	c611	<6yrs	6-10yrs	>10yrs
	c618	<6yrs	6-10yrs	>10yrs
	c620	<6yrs	6-10yrs	>10yrs
Exon 11	c630		>10yrs	>10yrs
	c634	<6yrs	<6yrs	<6yrs
Exon 13	c768		>10yrs	>10yrs
	c790		>10yrs	>10yrs
Exon 14	c804		>10yrs	>10yrs
Exon 15	c883		>10yrs	<6yrs
	c891		>10yrs	>10yrs
Exon 16	c912		>10yrs	>10yrs
	c918	<1yr	<1yr	<1yr

Methods

Patients in publications from 1995-2014 aged 0-20 years with individual information on age at TT, histology, and *RET*-mutation, if available, were included. Patients were grouped according to publication year: groups A=1995-1999, B=2000-2004, C=2005-2009, and D=2010-2014. Median age at TT, rate of MMTC, and rate of TT according guidelines were compared in the four groups.

Results

General

In 110 publications 604 patients were identified.

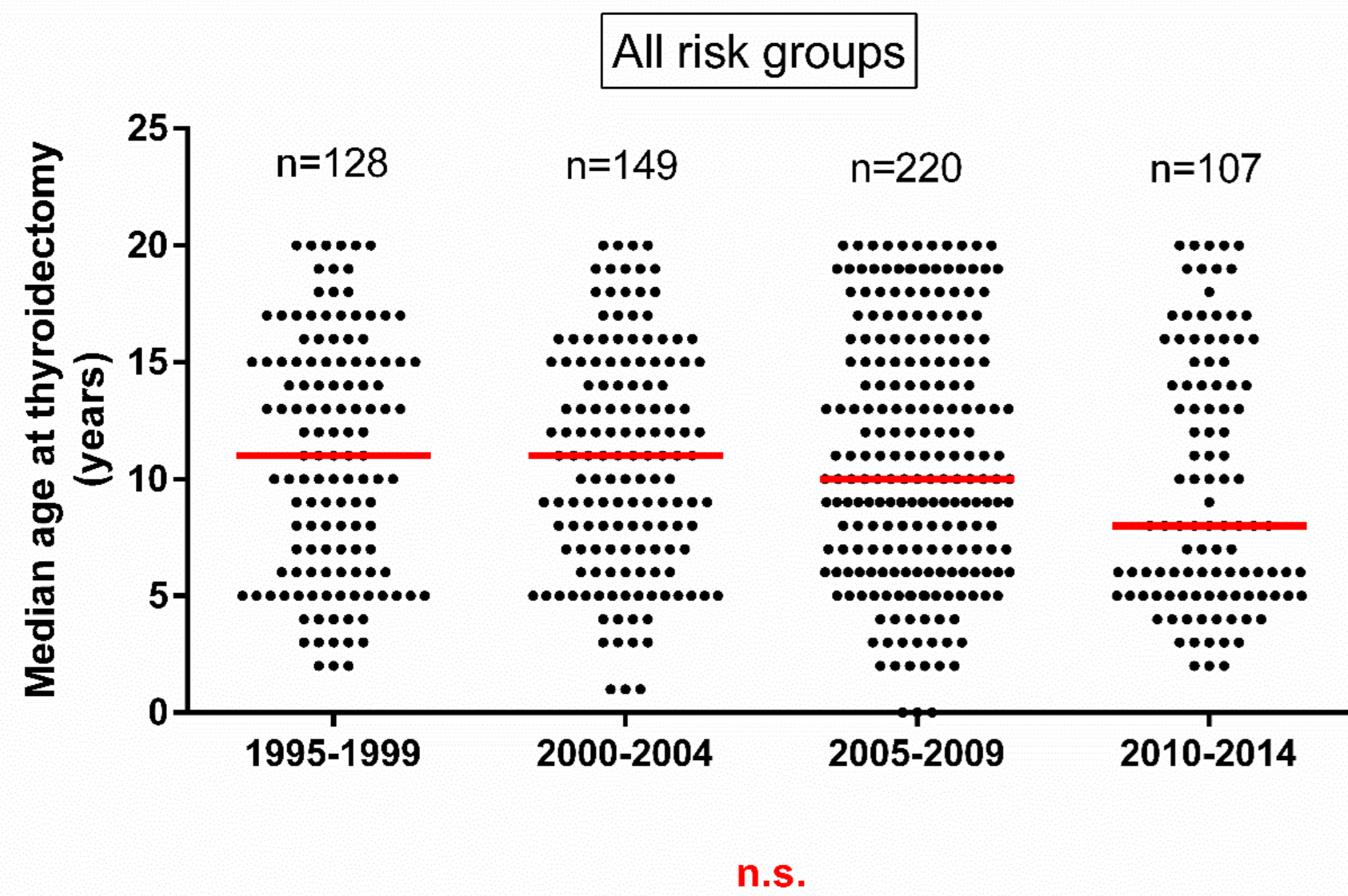


Figure 2: The median age at TT did not differ in the four groups (11, 11, 10, 8 years).

2015 ATA Moderate Risk (n= 263)

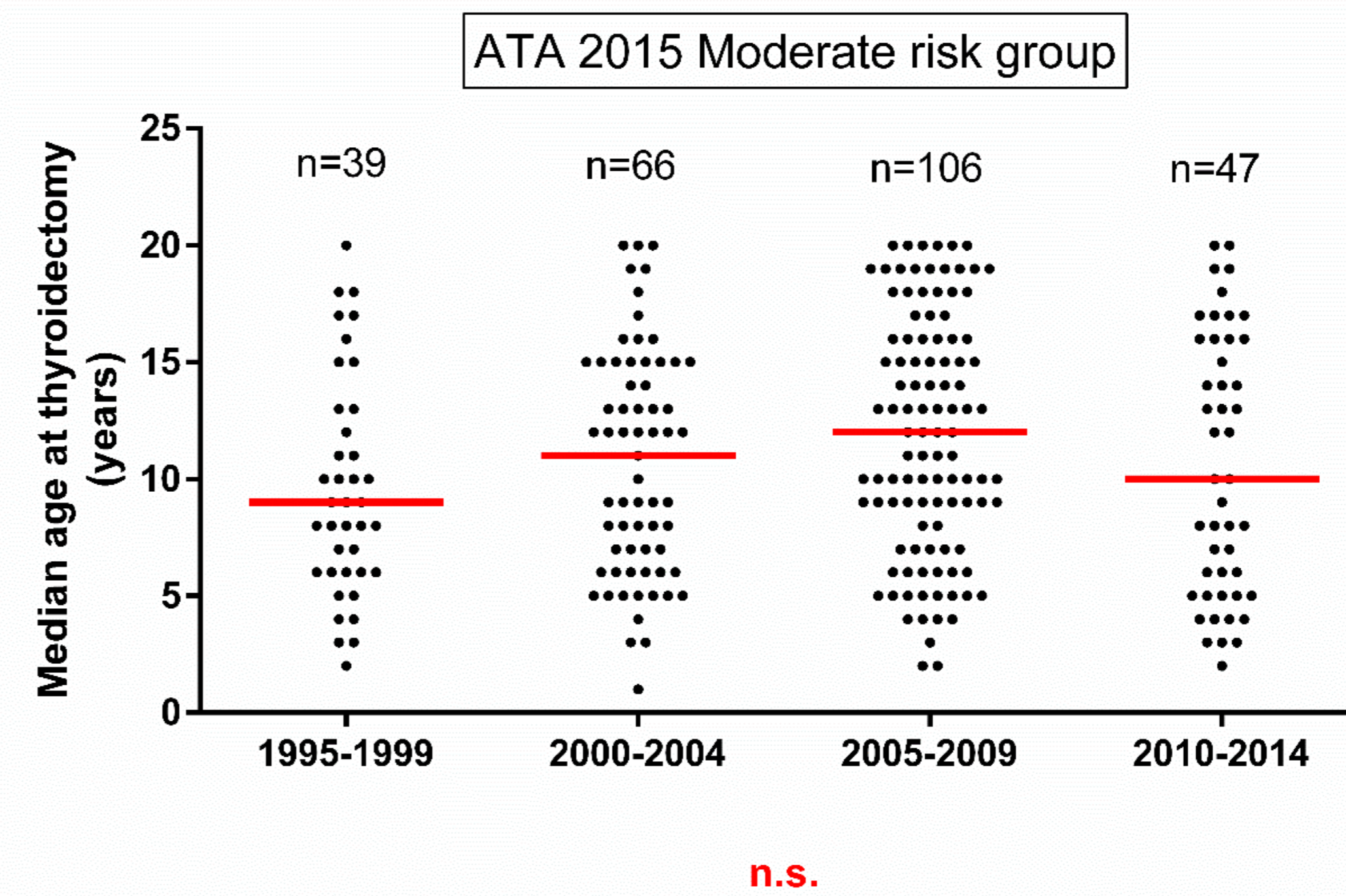


Figure 3: The median age at TT did not differ between groups (9, 11, 12, 10 years).

2015 ATA High Risk (n=296)

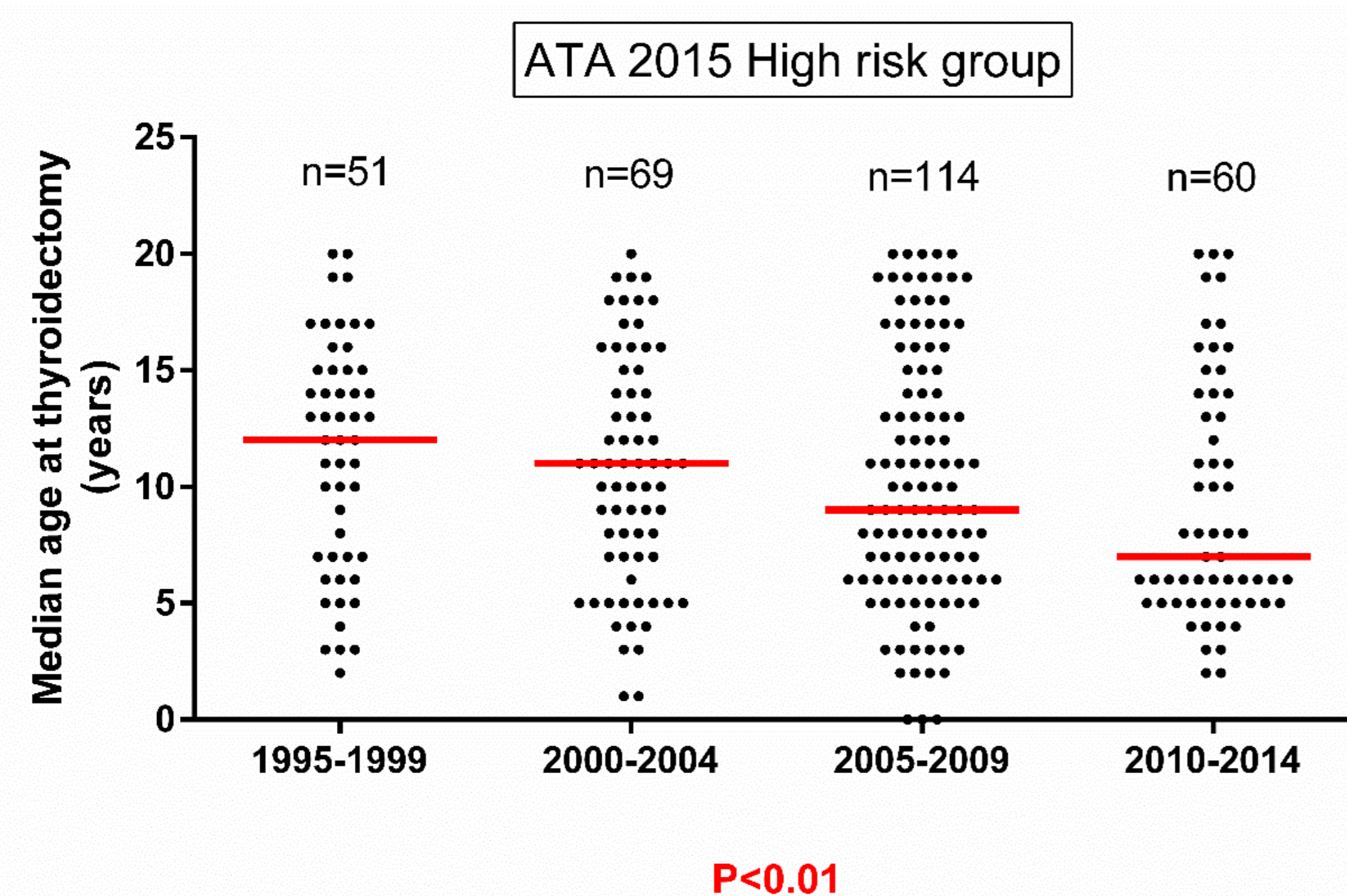


Figure 4: The median age at TT decreased significantly in the four groups from 13, 11, 9 to 7 years (P<0.01).

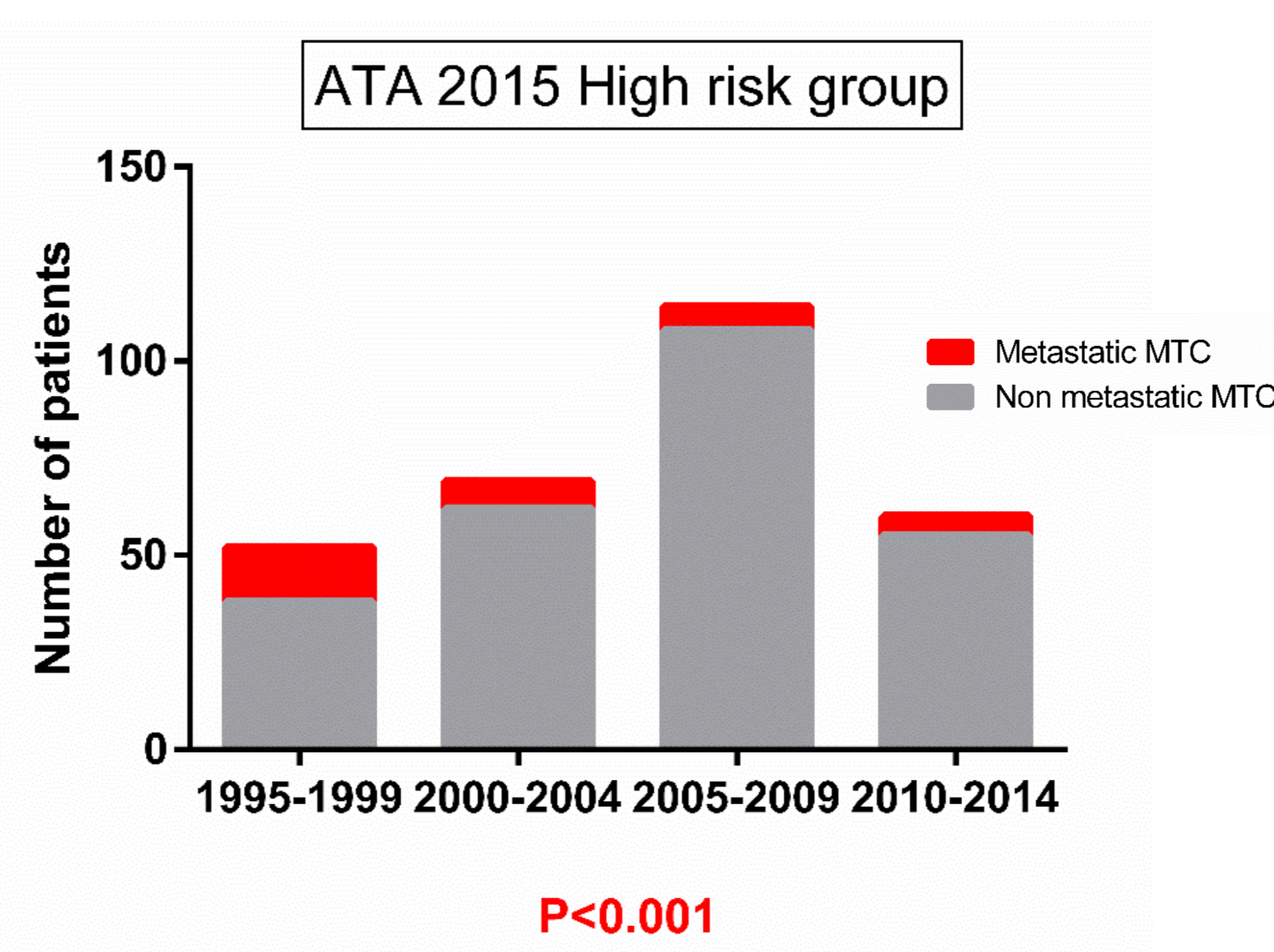


Figure 5: Significant decrease of MMTC in group A vs. D (27% vs. 8%, P<0.01).

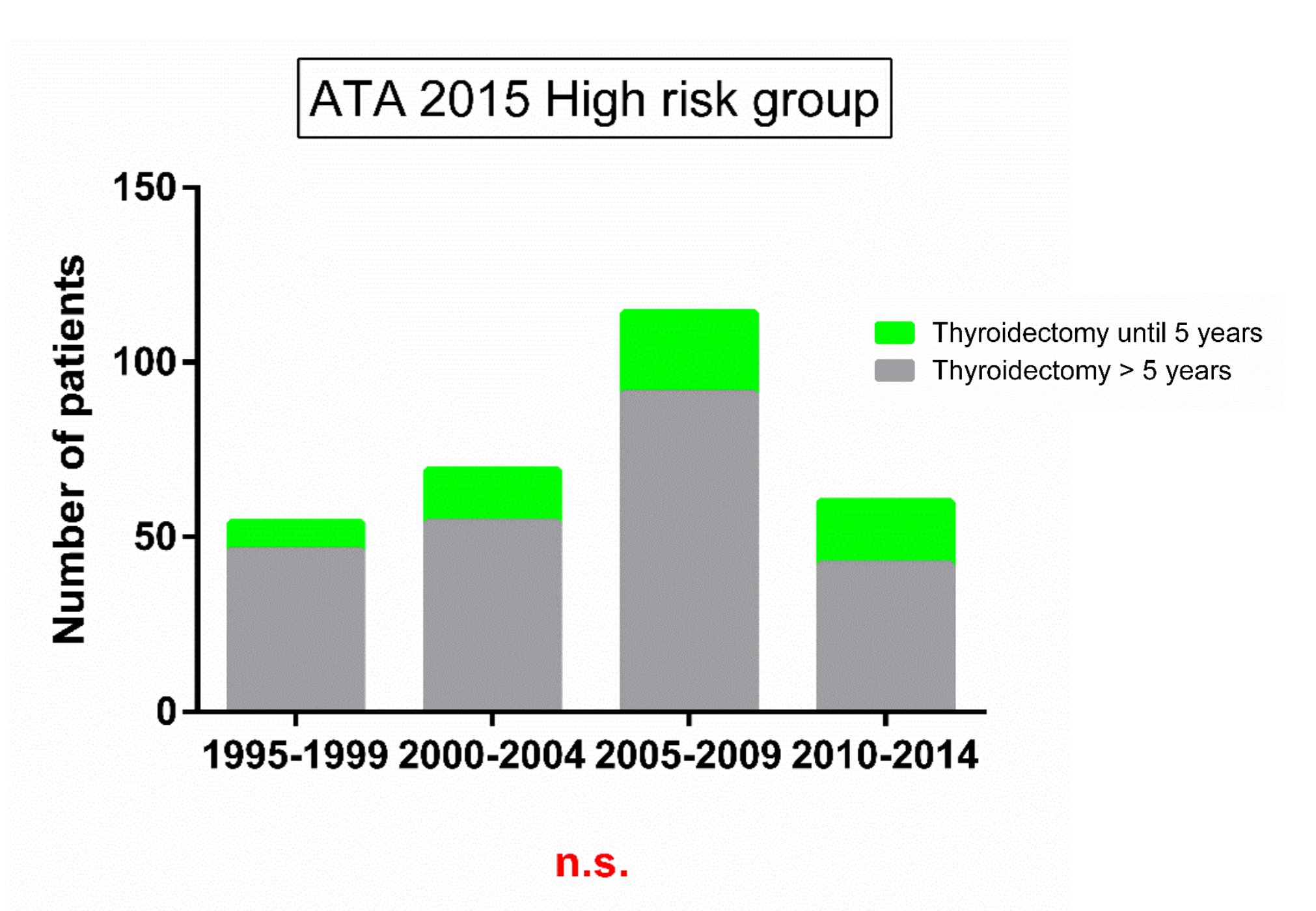


Figure 6: Children thyroidectomised before 5 years remained low (15%, 22%, 20%, 30%) despite genetic testing.

