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## Background:

Most reports on gonadotoxicity associated with chemotherapy of ALL come from studies in adults, and they are mainly focused on the sensitivity of testicular germ cells. Little attention has been placed on Sertoli cells in prepubertal patients, even though Sertoli cell function is essential for adult spermatogenesis.

## Objective:

To evaluate Sertoli cell function in prepubertal boys who receive chemotherapy for ALL.

## Study design:

A prospective cohort study including prepubertal male patients with ALL (2013-2016).

**Main outcome measure:**  
Serum AMH level  
(EIA Immunotech-Beckmann-Coulter)

**Secondary outcome measures:**  
FSH and LH levels  
(IFMA, DELFIA)

After each phase of chemotherapy and 6 month after treatment completion. Results are expressed as medians (range).

## RESULTS

Median age at diagnosis 4,0 yrs (0,4-14,2)

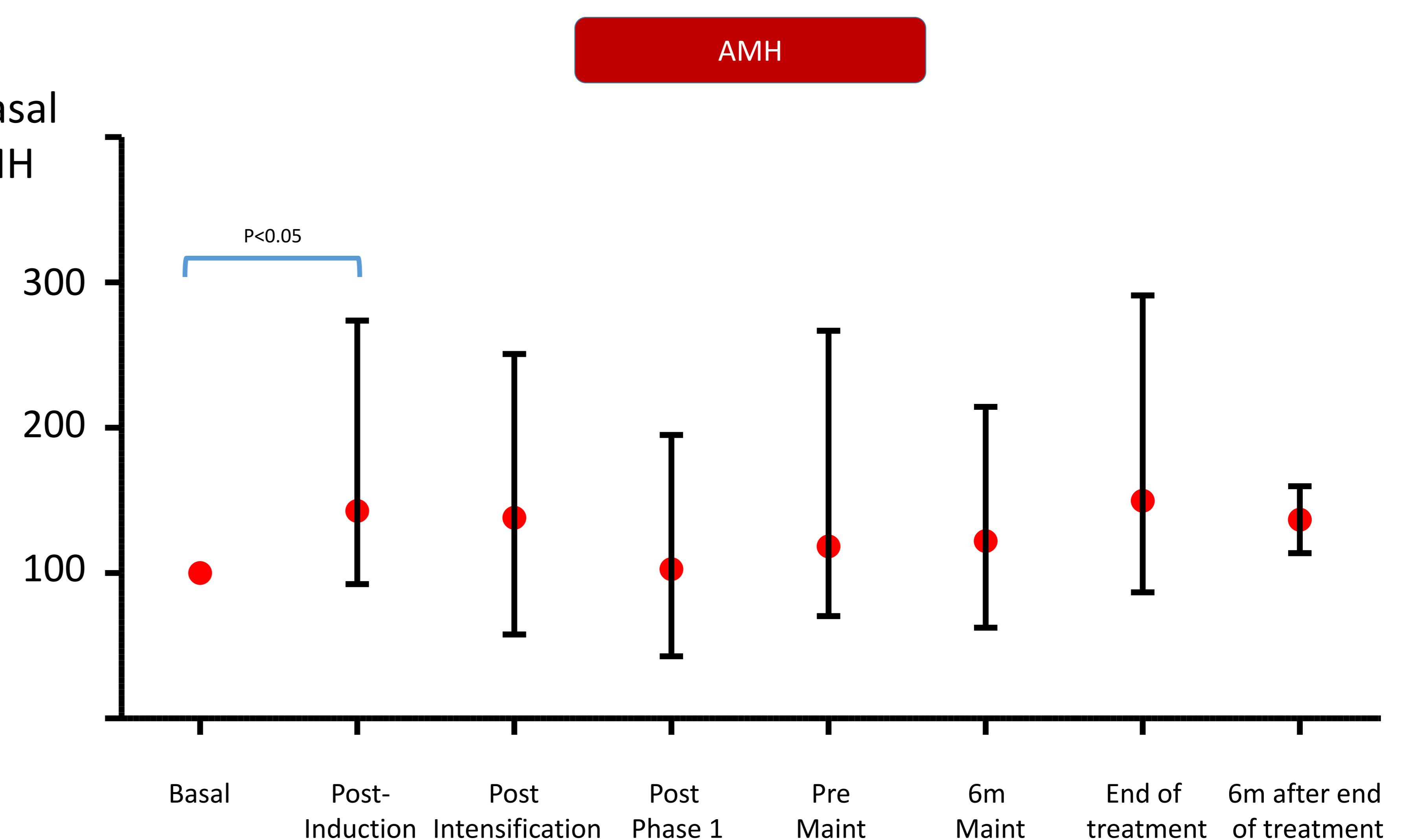
Inmunophenotype	n: 27	%
- Common ALL	20	74.0
- pro-B ALL	2	7.5
- T-cell ALL	2	7.5
- pre-B ALL	3	11.0

**Table 1** Inmunophenotype of included patients

Risk stratification	n: 27	%
- Standar Risk	4	14.8
- Medium Risk	14	51.8
- High Risk	9	33.4

**Table 2** Risk Stratification of included patients

% Basal AMH



	Basal	Post-Induction	Post-Intensification	Post-Phase 1	Pre-Maint	6m Maint	End of treatment	6m after end of treatment
N	27	18	23	15	18	13	7	5
AMH pmol/L								
Median	607	833	742	636	624	793	903	1040
Range	(152-1333)	(170-1697)	(240-1095)	(260-1095)	(326-1300)	(312-1386)	(523-1563)	(609-1573)
<math>< 3 \text{ Pc}</math> n%	2 (7.4%)	1 (5.5%)	1 (4.3%)	0	0	0	0	0

**Figure 1a** Proportion of Basal AMH. Kruskal-Wallis test  $p < 0.02$ . Dunn's Multiple Comparison Test  
**Figure 1b** AMH levels (median and range). Kruskal-Wallis test  $p > 0.05$ . Number of patients with AMH  $< 3 \text{ Pc}$

## AMH

	Decrease of AMH > 30%	%
High Risk	7/9	77.7%
Medium Risk	1/14	7.14%
Standar Risk	0/4	0%

**Table 2** Decrease of AMH > 30% of basal AMH. Chi-square  $p < 0.0001$

## Gonadotrophins

	Basal	Post induction	Post intensification	Post Phase 1	Pre Maint	6m Maint	End of treatment	6m after end of treatment
N	27	18	23	15	18	13	7	5
FSH U/L								
Median	0.63	0.28	0.87	0.65	1.09	0.77	1.50	0.50
Range	0.21-2.10	0.10-2.65	0.28-3.90	0.15-1.45	0.42-4.39	0.26-2.42	0.73-3.25	0.32-0.91
> 97 Pc n%	1 (3.7%)	1 (5.5%)	2 (8.7%)	0	3 (16.7%)	1 (7.7%)	1 (14.3%)	0
LH U/L								
Median	0.10	0.10	0.10	0.10	0.15	0.14	0.10	0.10
Range	0.10-1.11	0.10-0.18	0.10-0.84	0.10-0.10	0.10-0.77	0.10-0.32	0.10-0.51	0.10-0.17
> 97 Pc n%	1 (3.7%)	0	1 (4.3%)	0	1 (11.1%)	1 (7.7%)	1 (14.3%)	0

**Table 3** Gonadotrophin levels (Median and range) and number of patients with LH or FSH > 97 Pc

## DISCUSSION

These preliminary results suggest that **Sertoli cell function is not affected by chemotherapy** in prepubertal boys with standard or medium risk ALL, but is at least transiently affected in those with high risk LLA.

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