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BACKGROUND

Hypogonadotropic hypogonadism (HH) in females is an uncommon and heterogeneous condition. There is little data regarding profile of gonadotropins to confirm the biochemical diagnosis.

OBJECTIVE

To evaluate the gonadotrophic secretion profile during GnRH infusion in a female cohort diagnosed with HH

METHODS

Retrospective, observational study. Eighteen patients (17.5 ± 2.3 years)

Hypogonadotropic Hypogonadism clinical diagnosis ascertainment:

Pubertal delay or primary amenorrhea associated with:

- ✓ History of acquired or congenital pituitary pathology (n = 8) **Group 1**
- ✓ Hypo / anosmia (n = 6) **Group 2**
- ✓ Lack of pubertal development or pubertal progression at 18 years (n = 4) **Group 3**

GnRH iv infusion test : GnRH 0.83 µg/min during 120 min

LH, FSH at 0, 15, 30, 45, 60 and 120 min (IFMA) and basal Estradiol (ECLIA) were determined.

Baseline gonadotropins pubertal cutoff were defined as FSH > 1.5 IU/L and LH > 0.3 IU/L (1)

RESULTS

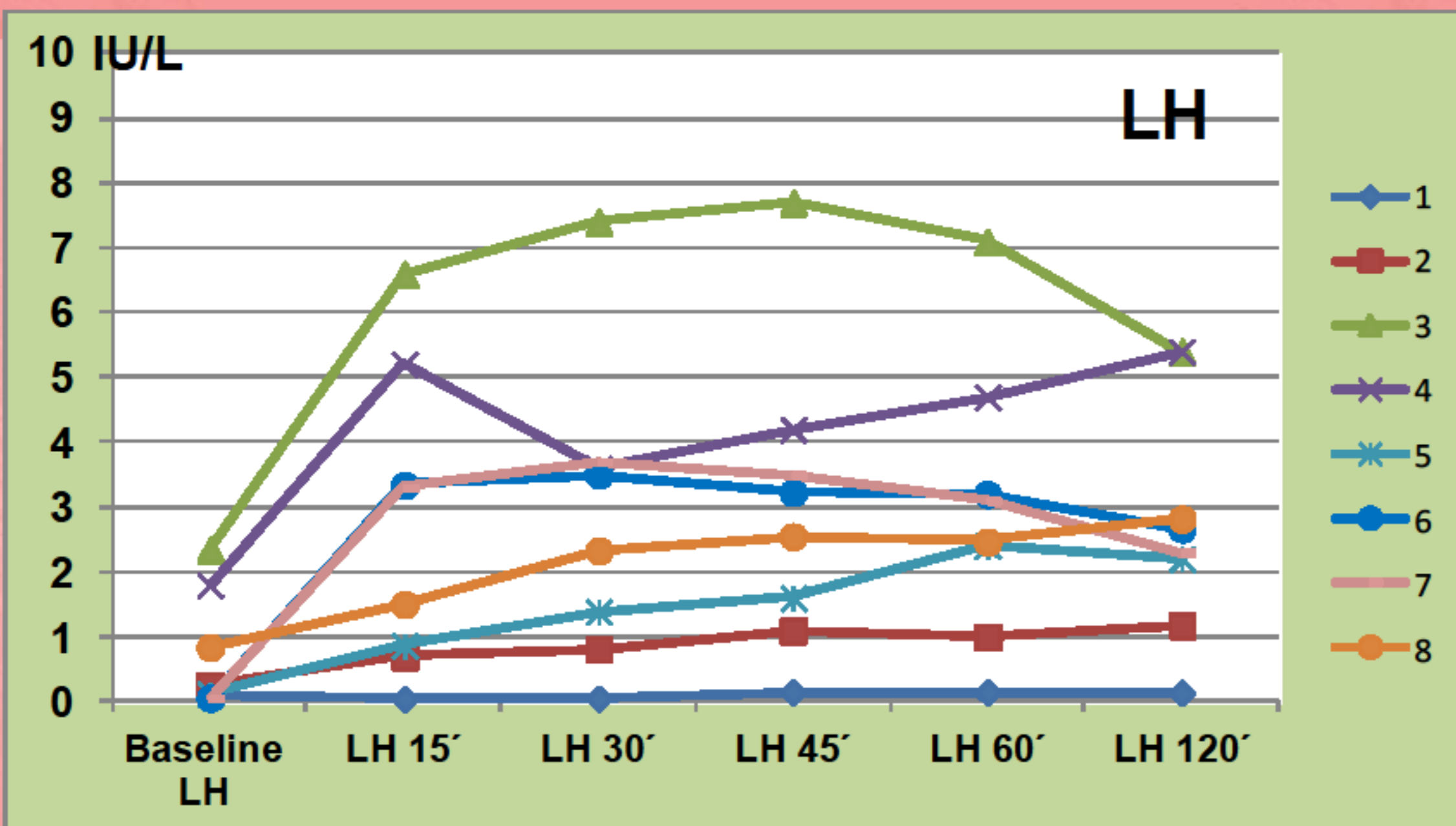
Baseline

Group	Baseline LH (IU/L)	Baseline FSH (IU/L)	LH < 0.3 IU/L	FSH < 1.5 IU/L	E ₂ < 15 pg/mL
1	0.20 (0.05 - 2.3)	0.80 (0.33 - 4.5)	88%	83%	100%
2	0.12 (0.05 - 0.22)	0.48 (0.05 - 0.57)			
3	0.28 (0.05 - 0.54)	0.9 (0.10 - 1.1)			

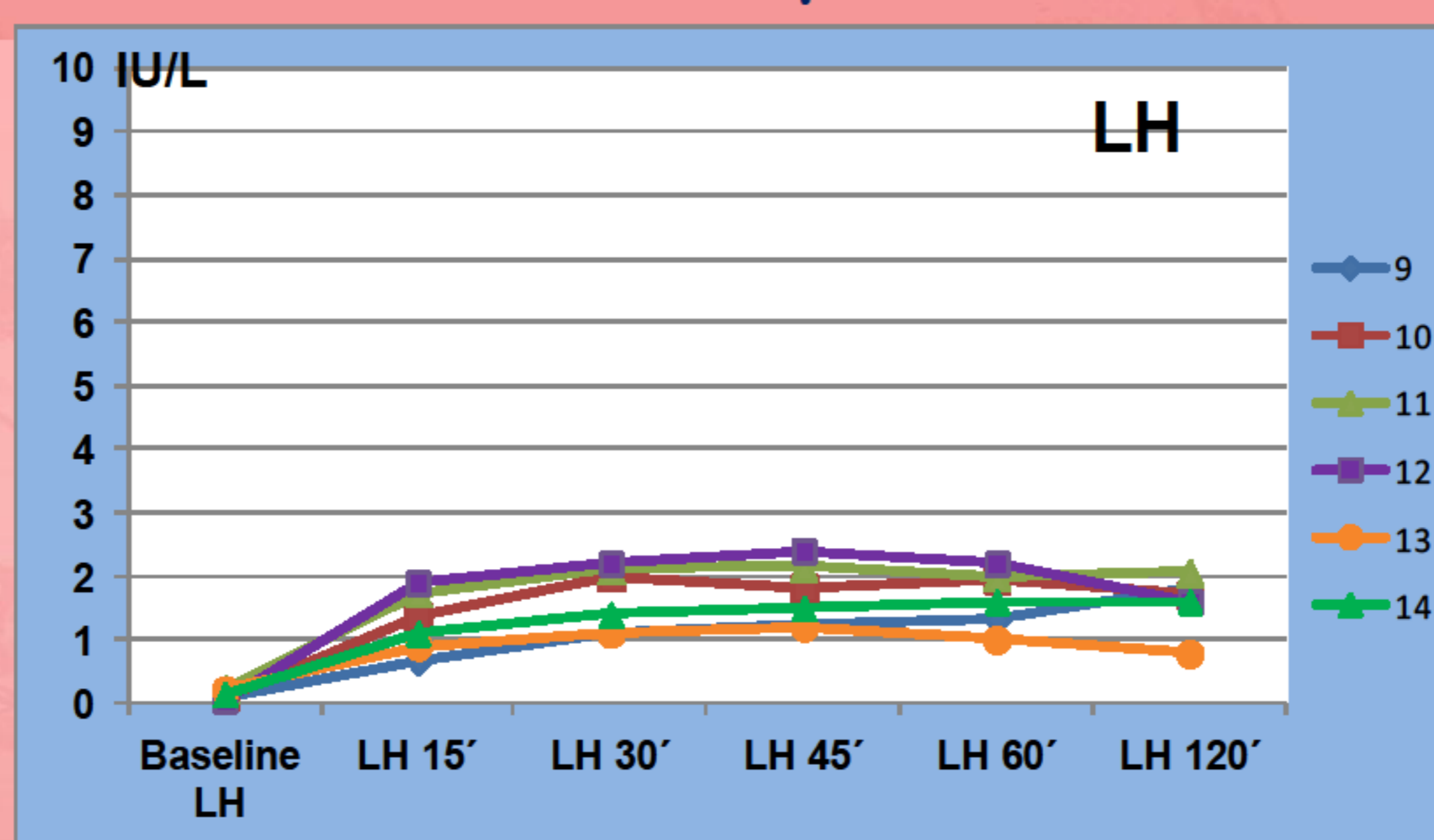
Values are showed as median (range)

GnRH infusion

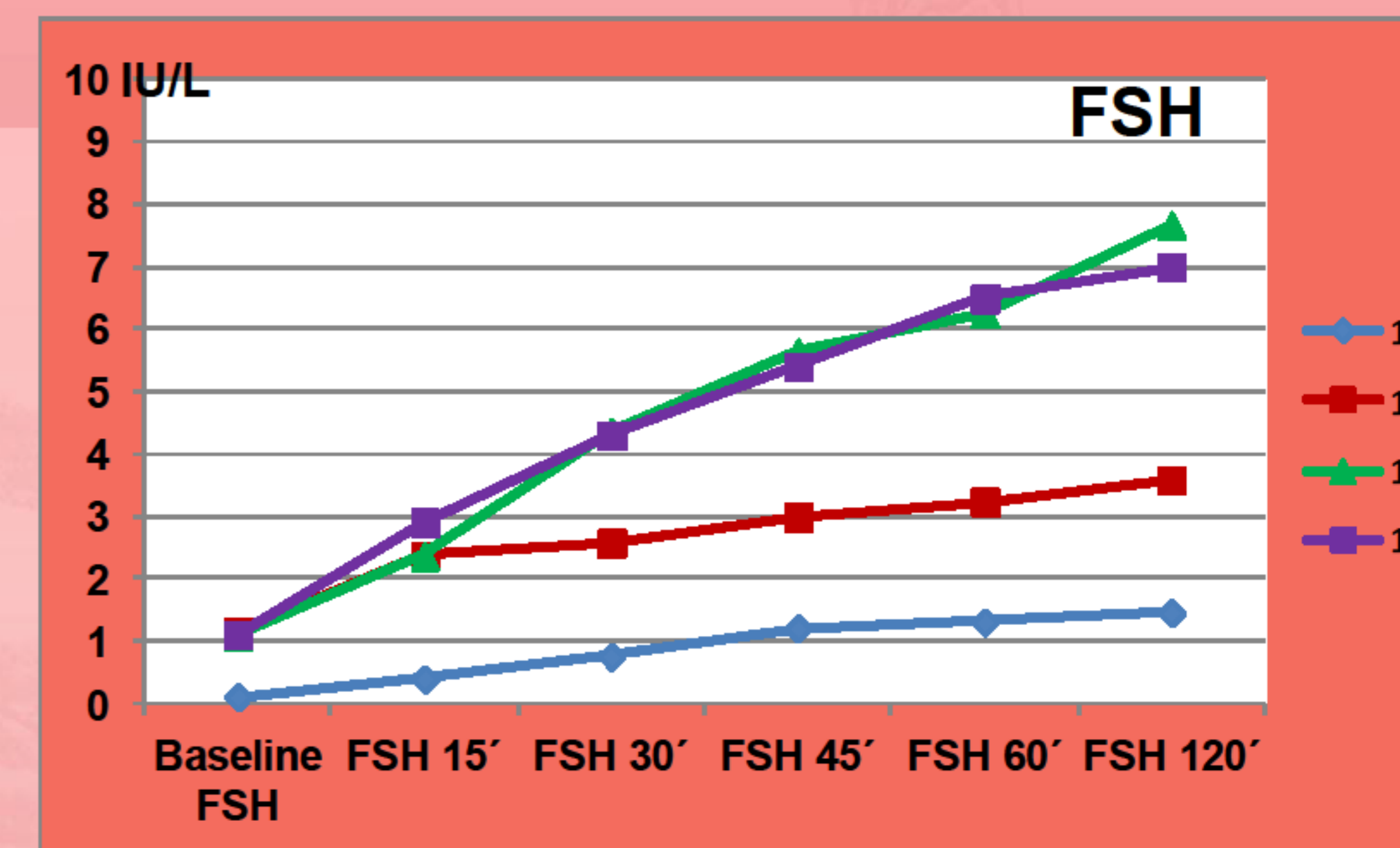
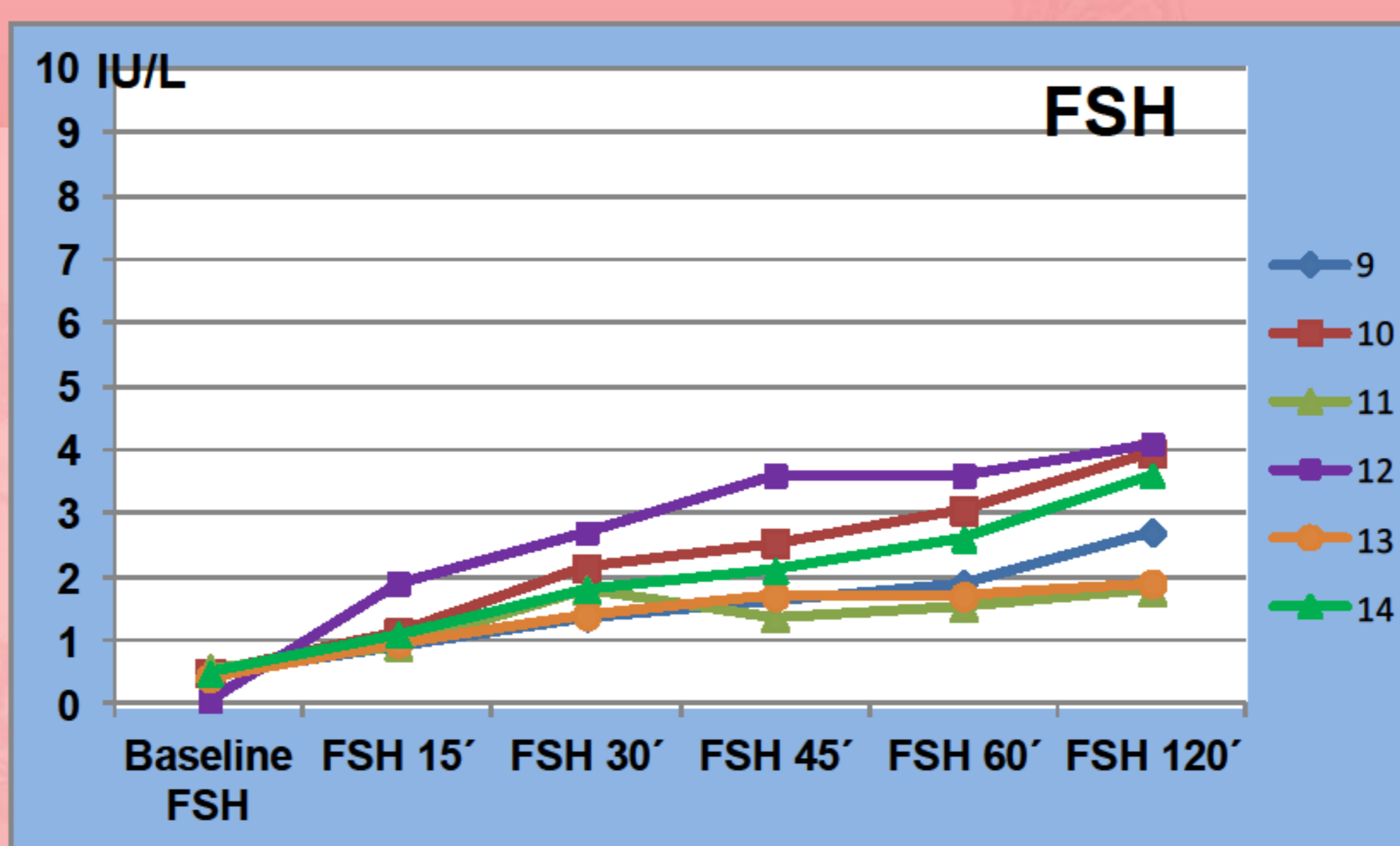
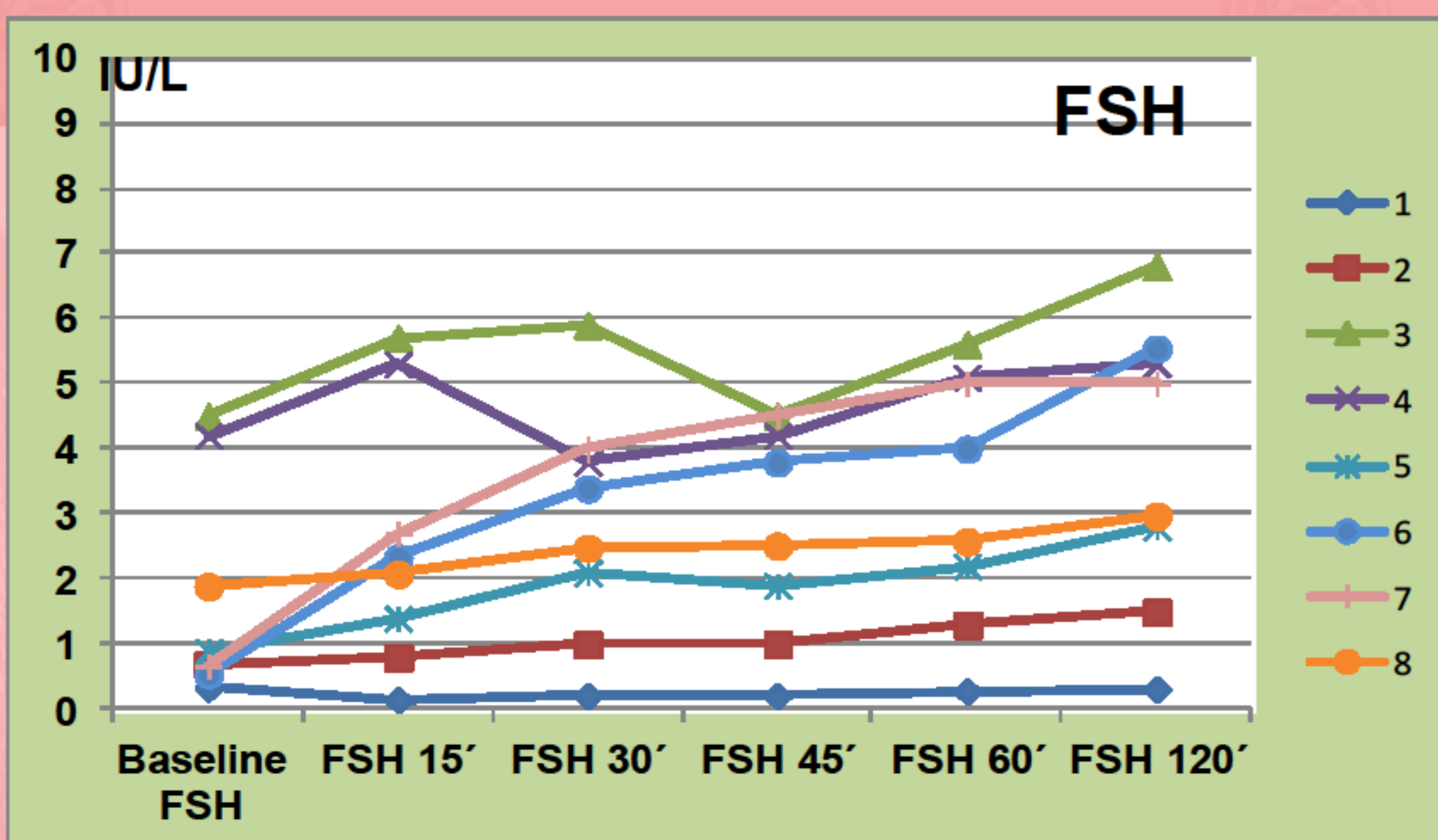
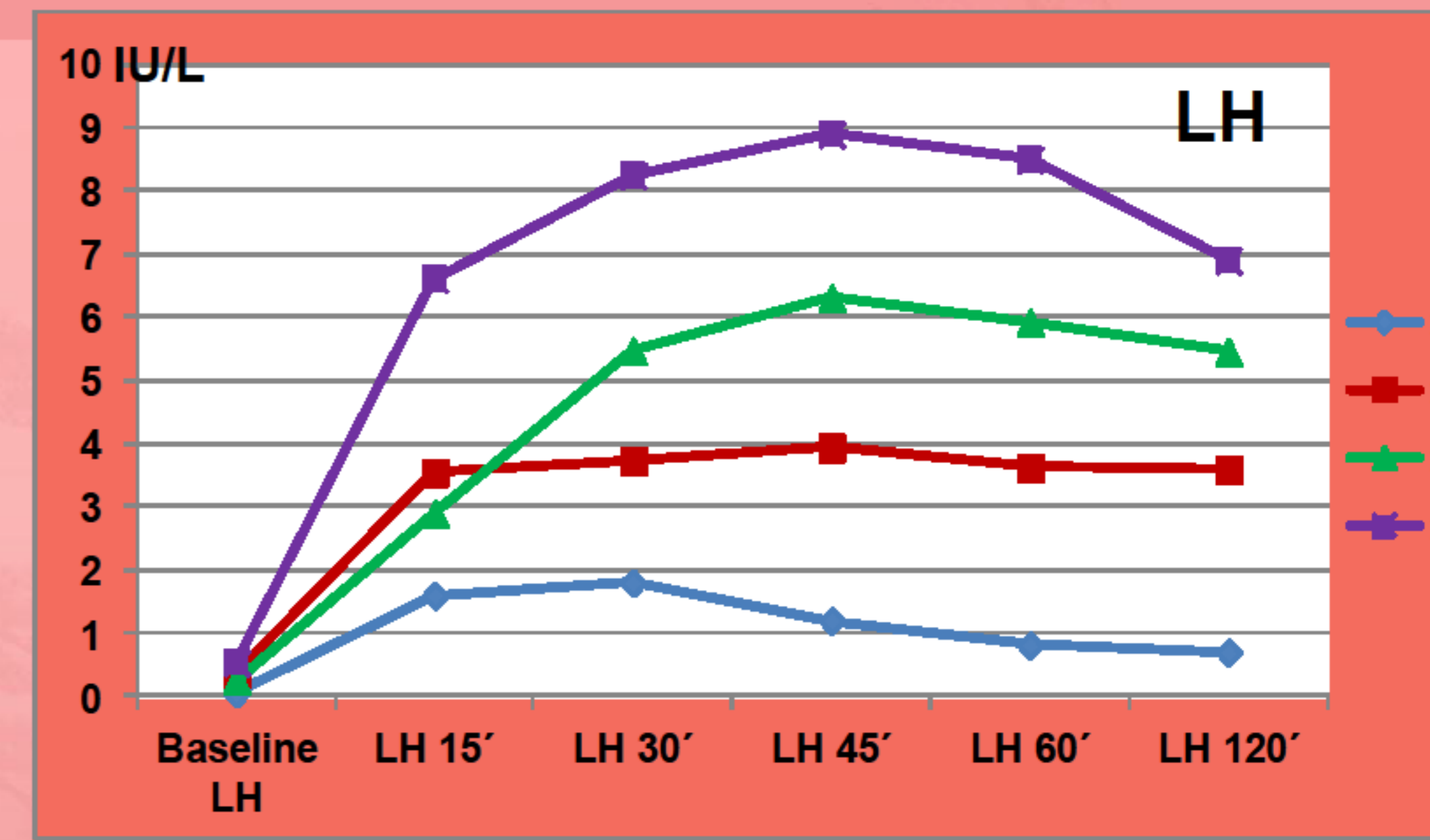
Group 1



Group 2



Group 3



Group	peak LH (IU/L)	peak FSH (IU/L)
1	3.2 (0.15 - 7.7)	4 (0.33 - 6.8)
2	1.9 (1.2 - 2.4)	3.2 (1.8 - 4.1)
3	5.1 (1.8 - 8.9)	5.3 (5.5 - 7.7)

Values are showed as median (range)

LH peak occurrence was variable. Nevertheless, when the LH peak occurred before 120 min, LH levels were lower at 120 min reflecting the lack of LH *de novo* synthesis in HH patients (P=0.001).

FSH peak occurrence was at 120 minutes in all patients

Areas under the curve of both gonadotropins during GnRH infusion were compared among 3 groups and they did not show any significant difference.

CONCLUSION

Gonadotropin profile during GnRH infusion in females with Hypogonadotropic Hypogonadism was heterogeneous, however patients with hypo/anosmia showed the lower gonadotropin profile variability. During the infusion of GnRH peak LH < 8.9 IU/L or peak FSH < 7.7 IU/L support the diagnosis of HH in females suspected of this condition.