Poster #IM04

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Serum Immunoglobulin Isotypes in Thai Children Determined by Nephelometry

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Introduction

- Serum levels of immunoglobulins are affected by race, nutritional status, geographic location, age, gender, and assays.
- The radial immunodiffusion method has been replaced by nephelometry which is easier and has higher precision. (1)
- There are limited immunoglobulin level data in healthy Asian children evaluated by nephelometry.

Objectives

- To qualify serum immunoglobulin (Ig) levels in the healthy Thai children age 2-15 years evaluated by nephelometry assay

Methods

- The healthy Thai children aged 2 months to15 years old were enrolled from the well baby clinic, the King Chulalongkorn Memorial Hospital, Bangkok.
- All caregivers consented to the study and healthy children ≥7 years old also gave assent.
- At screening visit, blood sample 4 ml was collected, centrifuged for serum, and sent to Ramathibodi Hospital laboratory for serum immunoglobulin measurement by nephelometric technique.

Results

- 148 children were enrolled (Table 1)
- The immunoglobulin (Ig) levels, Ig G, A, M, and IgG subclasses were presented in Table 2, Figure 1 and 2.
- The IgG subclass ratio (IgG subclass/total IgG) in this study was IgG1:2:3:4 was 66:22:5:7%, respectively.
- No difference of serum IgG levels between boys and girls all age groups (p = 0.97)

Table 1. Patients characteristic

Demographic	N=148
Gender, n (%)	
Male	55 (37.16)
Female	93 (62.84)
Age group, n (%)	
2-4	25 (16.89)
4-6	27 (18.24)
6-8	37 (25.00)
8-10	25 (16.89)
10-12	21 (14.19)
12-15	13 (8.78)

Figure 1: Alteration of IgG, IgA, and IgM level

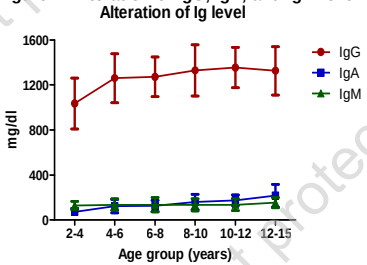

Figure 2: Alteration of IgG subclasses level

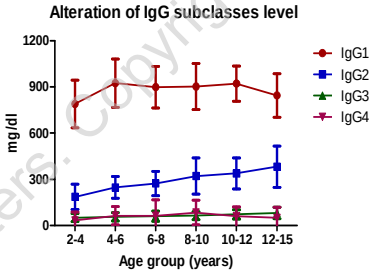

Table 2: Descriptive statistic of each Ig by age groups

IgG	n	Geometric mean (mg/dl)	SD	minimun	maximun
2-4	25	1035	226	638	1570
4-6	27	1260	217	910	1940
6-8	37	1271	176	840	1570
8-10	25	1329	227	961	1750
10-12	21	1354	179	1080	1760
12-15	13	1326	215	949	1680
IgA	**n**	**mean**	**SD**	**minimun**	**maximun**
2-4	25	73	31	33	170
4-6	27	124	61	41	344
6-8	37	126	49	57	257
8-10	25	161	69	86	396
10-12	21	177	47	85	267
12-15	13	217	101	108	473
IgM	**n**	**mean**	**SD**	**minimun**	**maximun**
2-4	25	130	36	54	211
4-6	27	137	51	64	279
6-8	37	136	64	81	394
8-10	25	135	55	81	280
10-12	21	137	53	46	242
12-15	13	155	47	98	275

Discussions

- The IgG levels increased rapidly from age group 2-4 to 8-10 then increased gradually until 12-15 years old.
- Compare Ig to Turkish children (2), our children had higher level of mean IgG, A, and M.
- In contrast to the previous studies in Thai children (3), IgG4 levels were higher than IgG3 levels in most age groups.
- Further Ig studies should be conducted in healthy children age <2 years in the other Asian countries.

Conclusions

- Serum immunoglobulin levels are resulted from genetic, age and assay which should be considered in order to obtain the standard levels for the precise diagnosis of immunologic abnormalities in children.

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References

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