THE CHARACTERISTICS OF THE THYROID DYSFUNCTION IN PREGNANT WOMEN IN THE FIRST TRIMESTER

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ACKNOWNLEDGMENT

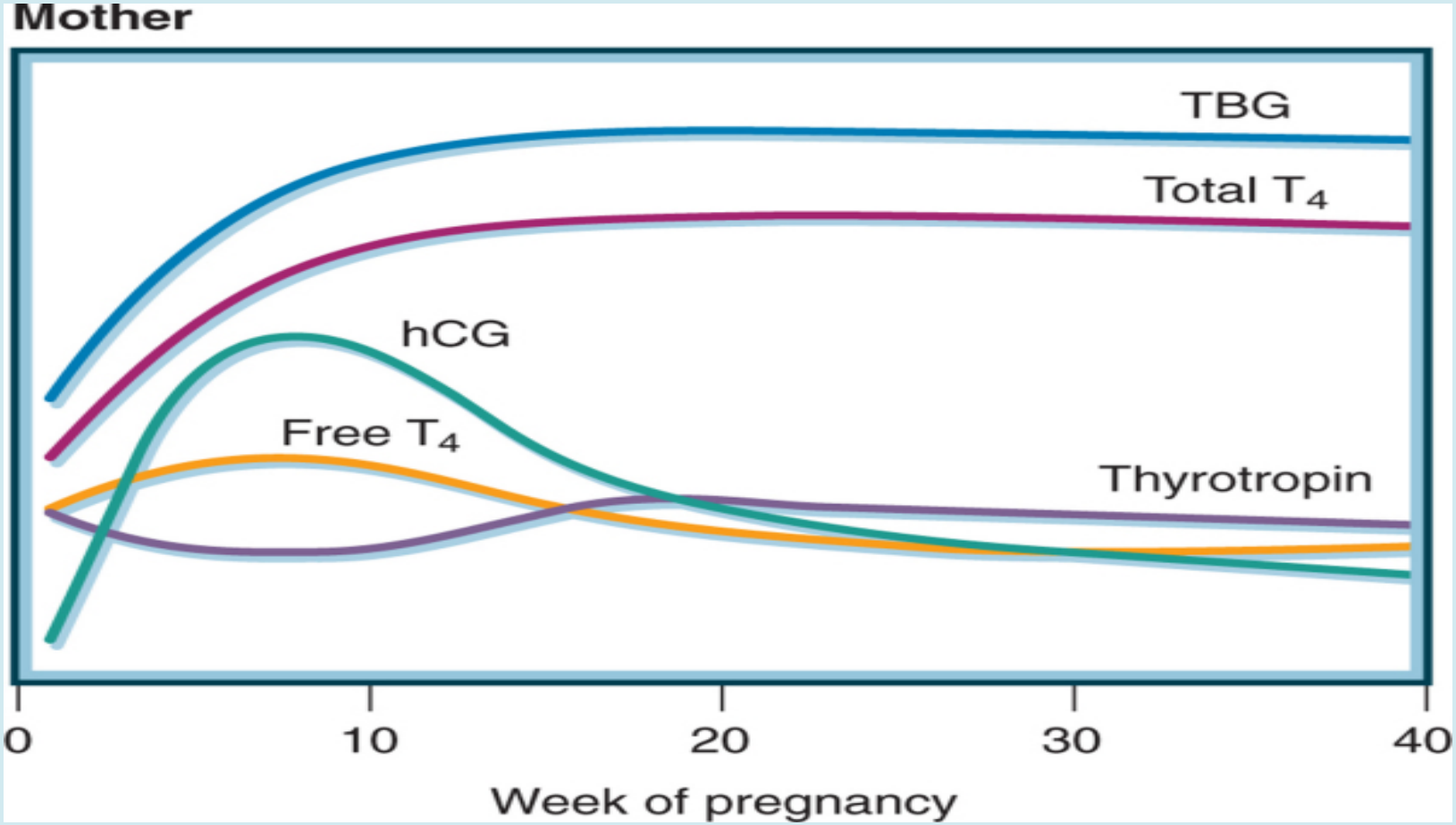
- Important role of thyroid gland.
- Thyroid dysfunction is a common occurrence in pregnancy and affects both maternal and fetal outcomes
- Thyroid hormones change significantly in pregnancy (especially in the first trimester)
- There are limited data on prevalence of thyroid dysfunction during pregnancy from Vietnam

OBJECTIVE

Identify the prevalence of thyroid dysfunction during the first trimester and some relative factors.

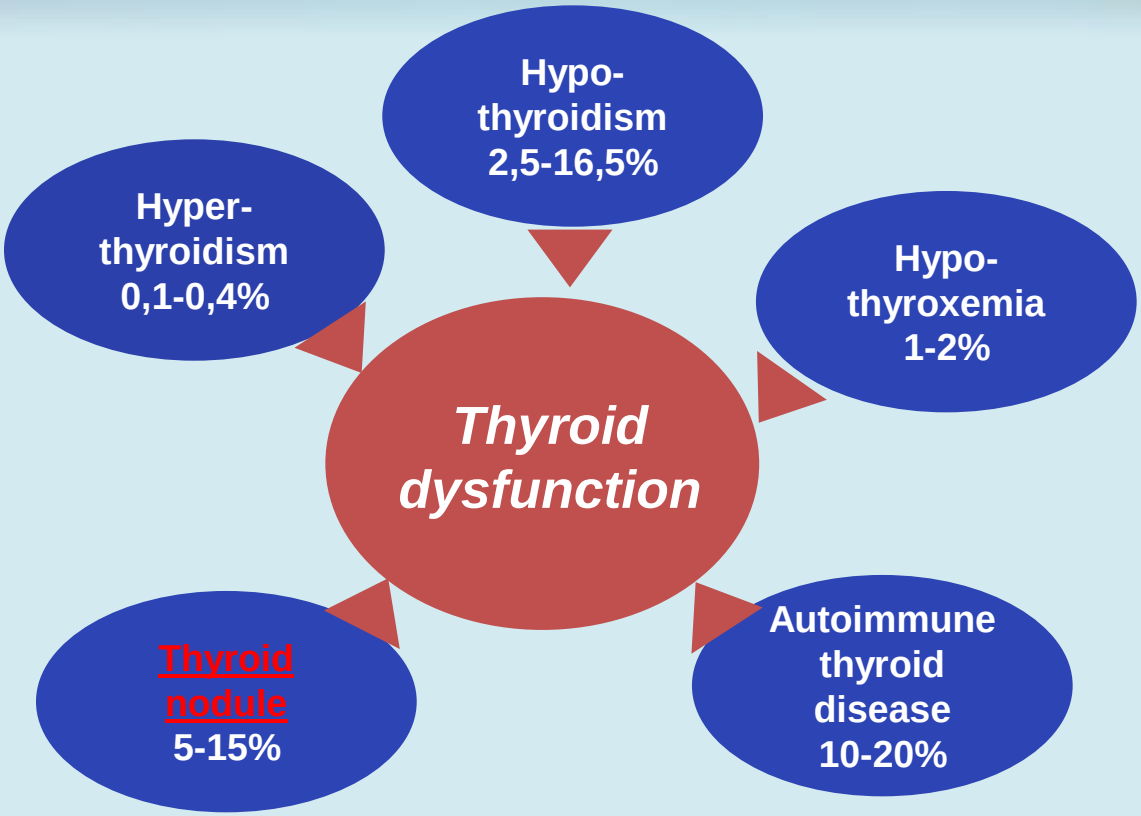
BACKGROUND

Physiologic changes of thyroid gland in pregnancy



BACKGROUND

Thyroid dysfunction in pregnancy



CONSEQUENCES :

- Preterm delivery, fetal death
- Placental abruption
- Gestational hypertension
- Congestive heart failure
- Thyroid storm
- Postpartum thyroiditis
- Neuro-developmental delay

*Allan, Abalovich et al: increase risk of fetal death in **overt** hypothyroidism pregnant woman*

*Vejbejerg: Autoimmune **image** and high lever TSH => early symptoms of thyroid dysfunction*

BACKGROUND

Screening for thyroid dysfunction during pregancy

- Age > 30, BMI ≥ 40kg/m^2.
- History of thyroid disease (personal/family)
- History of fetal death, preterm delivery.
- History of head and neck irradiation.
- Autoimmune diseases: type 1diabetes,…
- Using amiodarone, lithium.
- Symtoms of hypothyroidism
- Goiter.
- Anti-thyroid antibodies (+),

Endocrine Society Clinical Practice Guideline (2012)

MATERIAL AND METHOD

MATERIAL

156 pregnant women in the first trimester

- Location:
  - Endocrine Deparment, Bạch Mai Hospital.
  - National hospital of Obstetrics and genecology.
- Period: From 11/2014 to 7/2015

MATERIAL AND METHOD

INCLUDE

- Normal (living) pregnant women
- Singleton naturally pregnancy
- Week of pregnancy: 6 =>13
- Agreement to participate

EXCLUDE

- Fertilization: IUI, IVF
- Acute disease: infection, liver, kidney...
- Using amiodarone, lithium, corticoid...

MATERIAL AND METHOD

- **Type of study**: across – sectional
- **Size**:

Laboratory

- Venous blood test, in hungry time
- Quantitative analysis of FT4, TSH and anti-TPO: electroluminescence immunoassay
- Cobas 6000 modul e601 and Cobas 411 (Roche)
- Department of Biochemistry - Bạch Mai Hospital

MATERIAL AND METHOD

Analyze: TSH, FT4, anti-TPO

	TSH (mIU/l)*	FT4 (pmol/l)**
Low	**< 0,1**	**< 12,0**
Normal	0,1 - 2,5	12,0 - 23,34
High	**> 2,5**	**> 23,34**

Anti-TPO ≥ 34 IU/l => Positive

** ATA 2011*
*** Wang 2011*

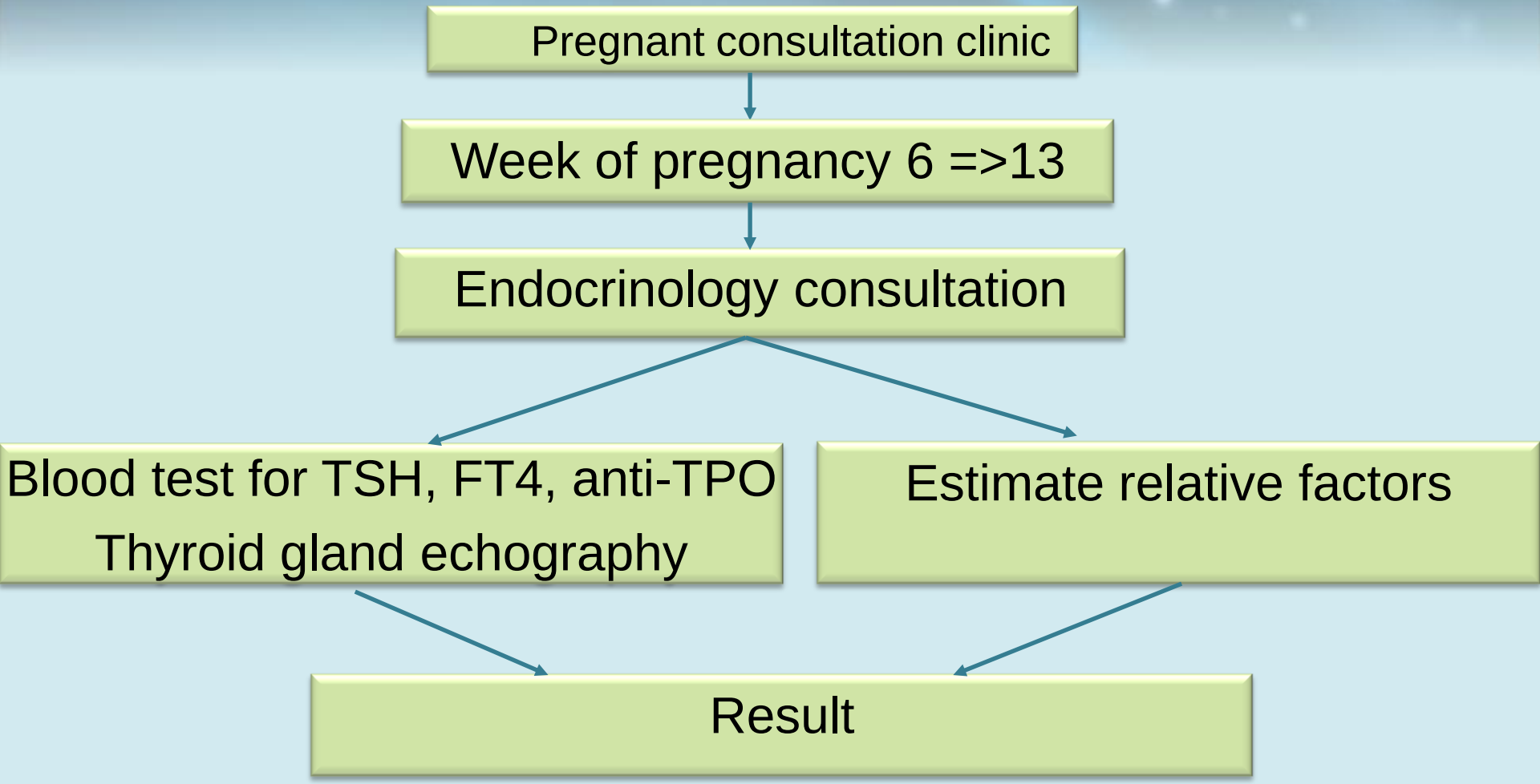
MATERIAL AND METHOD

Diagnosis of thyroid dysfunction (ATA 2011)

Hypo-thyroidism	Overt	TSH ≥ 10 mIU/l 2,5 < TSH < 10 and FT4 < 12 pmol/l
	Subclinical	2,5 < TSH < 10 and normal FT4
Hyper-thyroidism	Overt	TSH < 0,1 and FT4 > 23,34
	Subclinical	TSH < 0,1 and FT4 normal
Hypo-thyroxinemia		0,1 < TSH < 2,5 and FT4 < 12 pmol/l

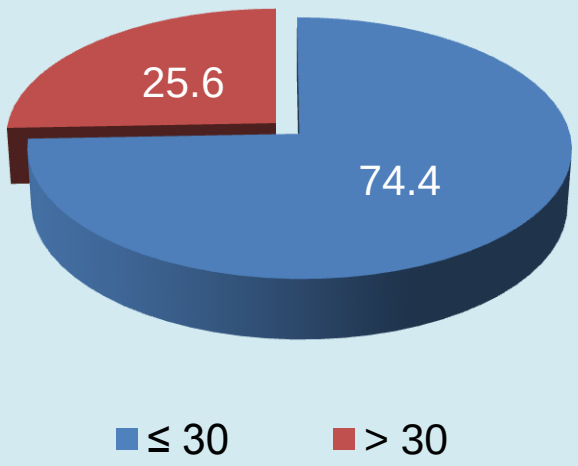
MATERIAL AND METHOD

Diagram

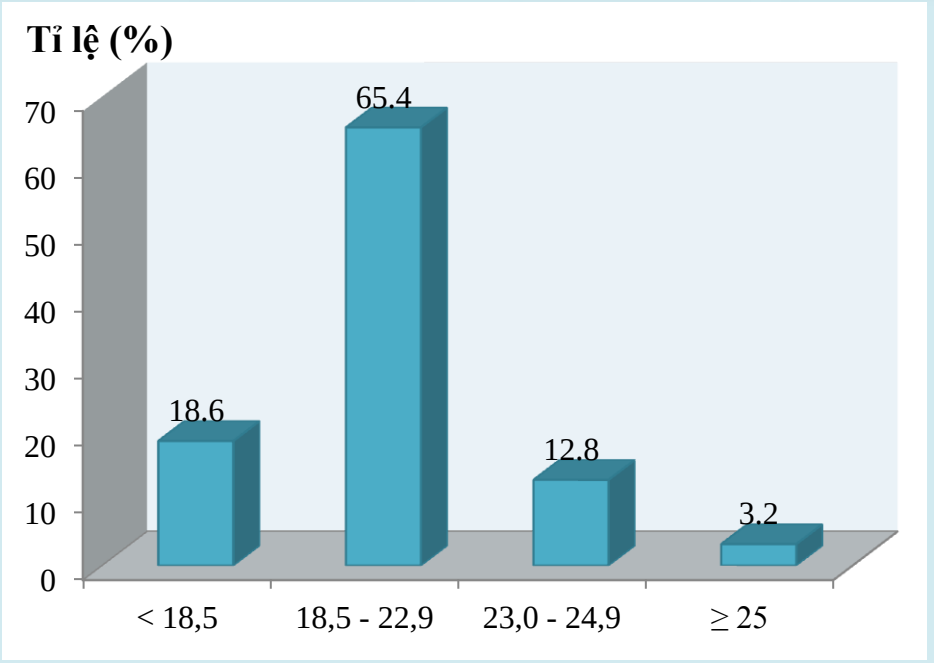


RESULT AND DISCUSS

Common characteristics



Range of age

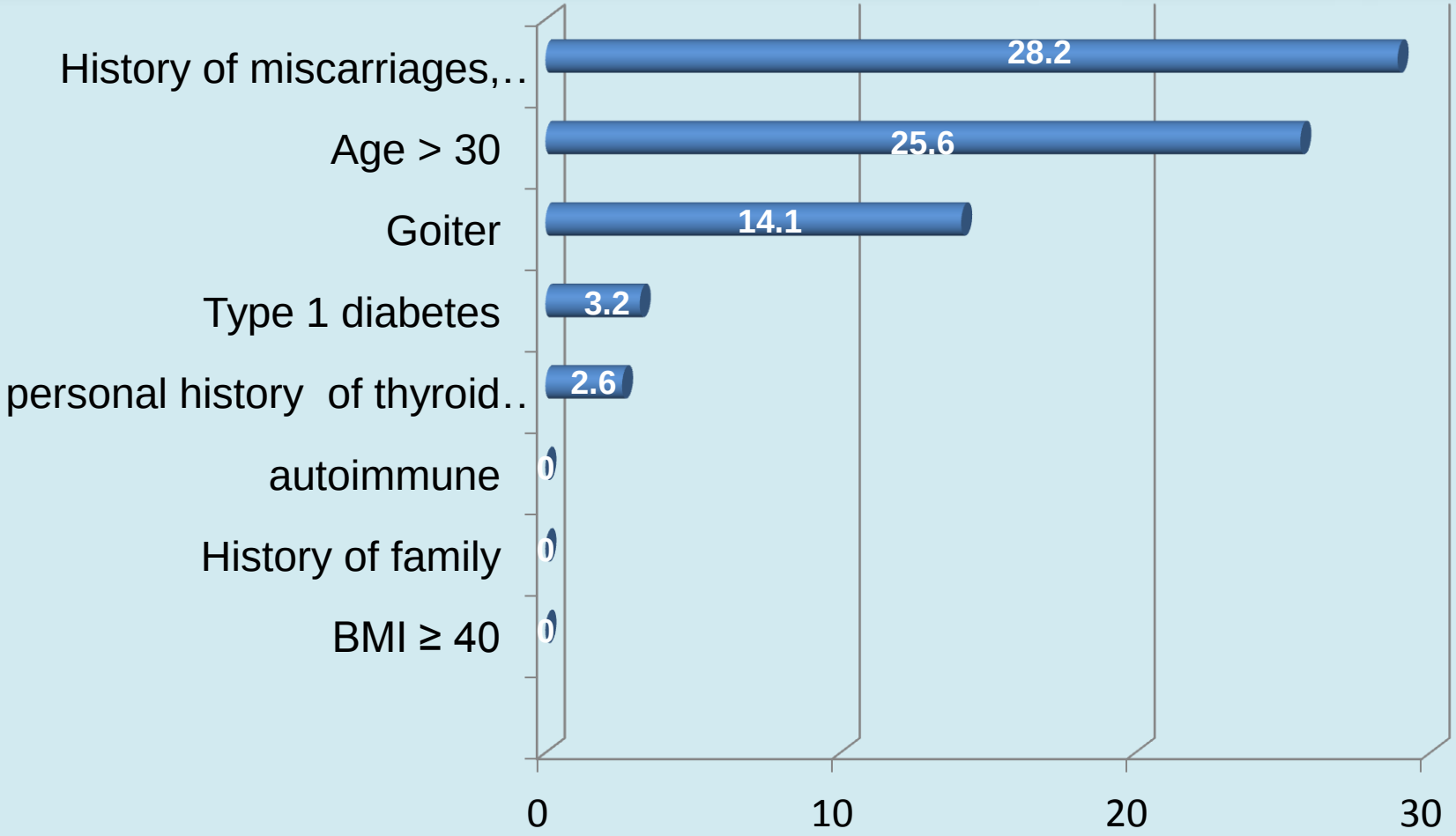


Range of BMI before pregnancy

Mean of pregnant: **11,42** **1,97** week (6- 13 week)

RESULT AND DISCUSS

some relative factors with dysfuntion thyroid



RESULT AND DISCUSS

Serum TSH

Serum TSH level (mIU/l)	n	%
LOW (< 0,1)	26	16,7
nomal (0,1 - 2,5)	113	72,4
HIGH (> 2,5)	17	10,9
Total	156	100
$\bar{x}$ SD	1,194 1.32 mIU/l	

-Nguyen Thi Tuong Van: 1,20 0,64 mIU/l
-Kurioka : 1,1 mIU/l

RESULT AND DISCUSS

Serum FT4

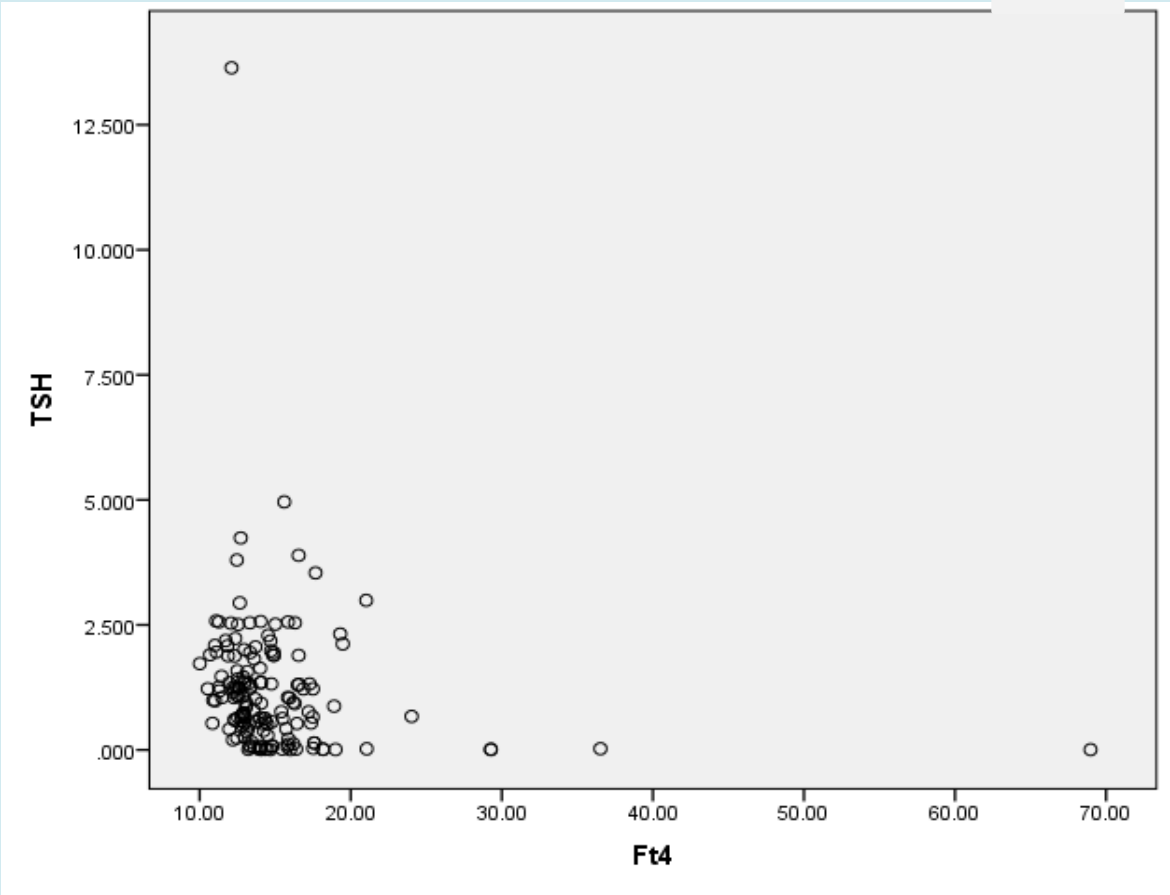
Serum FT4 level (pmol/l)	n	%
LOW< 12,0	19	12,2
nomal (12,0 - 23,34)	132	84,6
HIGH> 23,34	5	3,2
Total	156	100
x SD	14,84 5,50 pmol/l	

-Panesar et al: 16,2 pmol/l
-Mawaha: 14,9 mIU/l

-Wang: 1,2% (decrease FT4) pmol/l
-Yang: 1,3%

RESULT AND DISCUSS

TSH and FT4



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RESULT AND DISCUSS

Some dysfuntions thyroid

Some dysfuntions thyroid		n		%
hypothyroidism	over	3	17	10,9
	subclinical	14		
Hyperthyroidism	over	4	26	16,7
	subclinical	22		
hypothyroxinaemia		17		10,9
euthyroid		96		61,5
Total		156		100

-Wang: 10,2% (7,5%,1,8%, 0,9%)
-Li C: 4-%> 27,8%
-Jacob JJ: 12,3%-> 35,3%

RESULT AND DISCUSS

Hypothyroidism with some relative factors.

relative factors		n (113)	Hypothyroidism (%)	p	OR	95%CI
Personal history of thyroid disease	Yes	4	3 (75,0)	0,01	20,36	1,98 - 209,58
	no	109	14 (12,8)			
TPOAb	(+)	17	6 (35,3)	0,02	4,22	1,30 - 13,67
	(-)	96	11 (11,5)			

RESULT AND DISCUSS

Hyperthyroidism, hypothyroxinaemia with some relative factors

dysfuntion / **relative factors**	hyperthyroidism	hypothyroxinaemia
	p	**p**
age > 30	0,90	1,000
Personal history of thyroid disease	1,000	0,28
History of miscarriages, preterm delivery	0,45	0,56
Type 1 diabetes/autoimmune disease	0,58	1,000
Goiter	0,76	0,69
TPOAb (+)	0,74	1,000

RESULT AND DISCUSS

TPOAb with some relative factors

relative factors		**n (156)**	**TPOAb (+) n (%)**	**p**	**OR**	**95%CI**
History of miscarriages, preterm delivery	Yes	44	11 (25,0)	0,02	2,78	1,121 - 6,886
	No	112	12 (10,7)			
Type 1 diabetes/autoimmune	Yes	5	3 (60,0)	0,004	9,83	1,545 - 62,487
	No	151	20 (13,2)			

COLLUSION

*** Serum hormon thyroid, serum TPO**

- Mean serum TSH : 1,194 1.32 mIU/l.
  - Low TSH : 16,7%
  - High TSH : 10,9%.
- Mean serum FT4: 14.84 5.50 pmol/l, low FT4: 12,2%
- TPOAb (+) : 14,7%
- Hypothyroidism: 10.9% (sub: 1, 92%; clinal: 8,97%)
- Hyperthyroidism: 16,7% (sub: 2,56 ; clinal: 14,1%)

**** Some relative factors:***

-There was difference in the prevalence of hypothyroidism between personal history of thyroid disease, TPOAb (+) group and the nonhigh-risk group (75,0% vs 12,8%)

- There was no difference in the prevalence of hyperthyroidism between the high-risk group and the nonhigh-risk group

THANKS FOR ATTENTION !