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Association with Autoimmune Disease in Patients with Premature Ovarian Failure

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Objective: To assess the association with autoimmune endocrine diseases and detection rate of autoimmune antibodies and its clinical significance in patients with premature ovarian failure.

Methods: Twenty eight patients with primary or secondary amenorrhea manifesting hormonal and clinical features of premature ovarian failure (primary POF: 7, secondary POF: 21) were investigated. We tested them TFT, 75 g OGTT, ACTH and S-cortisol for thyroiditis, IDDM, Addison's disease, and antithyroglobulin antibody, antimicrosomal antibody, antinuclear antibody, rheumatic factor, anti-smooth muscle antibody, anti-acetylcholine receptor antibody for non-organ specific autoimmune disorders.

Results: Only one patient was diagnosed as IDDM and no patients had abnormal TFT or adrenal function test. More than one kind of autoantibody was detected in 11 patients of all (39.2%): 5 patients (71.4%) of primary POF group and 6 patients (21.4%) of secondary POF group. Eleven patients (39.3%) had antithyroglobulin antibody, 4 (14.3%) had antimicrosomal antibody, 2 (7.1%) had antinuclear antibody, 2 (7.1%) had rheumatic factor, 1 (3.6%) had anti-smooth muscle antibody, 1 (3.6%) had anti-acetylcholine receptor antibody.

Conclusions: Premature ovarian failure may occur as a component of an autoimmune polyglandular syndrome, so patients should be measured with free thyroxine, thyroid-stimulating hormone, fasting glucose and electrolytes. Measurement of thyroid autoantibodies in POF patients may be important in identifying patients at risk of developing overt hypothyroidism, but other autoantibodies may not be suitable for screening test.

Key Words: Premature ovarian failure, Autoimmune polyglandular syndrome, Autoantibodies

40 , ,
, 4 1%
1 2 , , 가
(FSH) 가 40 mIU/ml , 가
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가 (radioimmunoassay),
 (Hashimoto's thyroiditis), autoAb test system (Immunodiagno-
 (Addison's disease), stic, USA) (immuno-
 (IDDM) 가 가 fluorescence assay),
 (autoimmune polyglandular syndrome) acetylcholine-R-Ab (RSR, England)
 (SLE), (immunoradiometric
 가 analysis) F-
 1997 1 2002 12 uoro HEPANA test (MBL, Japan)
 28 (indirect immunofluorescence test)
 가 , N latex RF (Behring,
 가 Behring Nephelometer
 가 staging Tanner
 가 staging

40 4

FSH가 40 mIU/ml 28 20.1±2.5 (18~24) ,
 27.2±5.9 (18~
 39) .
 14.25±1.77 (11~18)
 20.33±4.21 (15~ 37
 , 21) .
 5 (71.4%)
 2 (8.7%)
 FSH, LH, E2, TSH, prolactin,
 DHEAS , TSH 가
 T3, T4, free T4

ACTH, s-cortisol, 24h

U-cortisol , FSH 84.27±40.58 mIU/ml, LH
 75g OGTT . 18.08±6.63 mIU/ml, E₂ 13.8±11.8 pg/ml ,
 가 , FSH
 , , 69.23±24.7 mIU/ml, LH 25.5±10.96 mIU/ml, E₂
 , , (rheumatic factor) 17.68±13.6 pg/ml

83.3% Z score -1
 antiTPO RIA kit (osteopenia) , 38.9%
 (Beckman coulter, Germany), -2.5 (osteoporosis)
 RIAZENCO TG Ab (Zentech, Belgium) , 85.7%

Table 1. The comparison of hormonal profile and BMD in premature ovarian failure patients

| | Primary (n=7) | Secondary (n=23) | p-value |
|------|---------------|------------------|---------|
| Age* | 20.1±2.5 | 27.2±5.9 | 0.0001 |
| FSH | 84.27±40.58 | 69.23±24.7 | 0.2372 |
| LH | 18.08±6.63 | 25.5±10.96 | 0.1029 |
| E2 | 13.8±11.8 | 17.68±13.6 | 0.5044 |
| BMD | -2.68±1.04 | -2.08±0.95 | 0.181 |

* significant p<0.05 by independent t-test

-2.5 (Table 1).
가
가
,
(rheumatic factor),
,
6 (21.4%)
, 2
2가, 2 3가
.
5 (71.4%)
, 3 2가
.
가 11 (39.3%) 가
가 4 (14.3%), 2 (7.1%),
2 (7.1%), 1 (3.6%),
1 (3.6%)
(Table 2). 가 가
non-toxic multinodular goiter
.
(Addi-
son's disease)
ACTH, s-cortisol, 24h U-cortisol
가, 3
.
2 (8.7%) 2 (follicle depletion) (follicle

Table 2. Autoantibodies in premature ovarian failure patients

| | Primary (n=7) | Secondary (n=23) | Total (n=30) |
|-----------------|---------------|------------------|--------------|
| Thyroglobulin | 5 (71.4%) | 6 (28.6%) | 11 (39.3%) |
| Microsomal Ab. | 2 (28.6%) | 2 (9.5%) | 4 (14.3%) |
| ANA* | 1 (14.3%) | 1 (4.8%) | 2 (7.1%) |
| RA# | 1 (14.3%) | 1 (4.8%) | 2 (7.1%) |
| antiSM† | 0 | 1 (4.8%) | 1 (3.6%) |
| Acetylcholin-R‡ | 0 | 1 (4.8%) | 1 (3.6%) |

* ANA: antinuclear antibody

#RA: rheumatic factor

† antiSM: anti-smooth muscle antibody

‡ Acetylcholin-R: anti-acetylcholin receptor antibody

, 2 3
.
40
,
1% , 1 30 1,000
40 100
.
4
1
2 FSH 가 40 mIU/ml
.
10~20%,
4~18%
.
40
(promodial follicle)
가
.
가
.
2 (follicle depletion) (follicle

dysfunction) . , 1.5%,
 (pure gonadal dysgenesis) 0.74%, 0.74% 가
 (thymic aplasia) . 가
 가 , X (, X 가
 , X) 가
 (galactosemia), 가 ,
 (follicle atresia)가 가 가
 . , 가
 , (lymphocytic oophoritis), 가
 (,) .
 가 가
 . 가
 가 , (Addison's ds.),
 가 가 가
 , 가
 , 가
 가 가
 33~52% ,
 , , ,
 가 ,
 가 가 .¹¹
 .³⁻⁶ 가
 가 (Addison's ds.)
 , 가 , 가
 , (Corticotropin)
 .⁷ Kim ⁸ , .¹²
 (adrenal cortex autoantibodies)
 18.5%, 가
 2.5%, 가 가 .¹³ 가
 가
 . Alper .
 9 가 가 가 가
 39% 가 , Conway ¹⁰ . Miyake ¹⁴
 가 10% 가 70%
 , 7.4% 가 가 가

가 35% (21.4%)

Belvisi¹⁵ 가 40% 가 20% 가 39.3%, 21.4%

6 (21.4%) 가

5 (71.4%) 39.2% 가 39.3%, 14.3%

가 A (Ig A deficiency) Ishizuka¹⁶ 31.3% 77%

7.1% , 30 7.4% Mig-

not¹⁷ 가 42%, 가 41%, 가 53%

, Blumenfeld¹⁸ 가 24%, 가 10.5%, 가 7.7%

가가 Conway 가 4%, 가 2%

7.1%, 3.6%, 3.6% Blumenfeld Conway

가 39.2%

가 71.4%

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