

## 자해 증상을 가진 발달장애아의 약물치료\*

DRUG THERAPY FOR DEVELOPMENTAL DISORDER  
PATIENTS WITH SELF-MUTILATION김 봉 석<sup>\*\*†</sup>Bong Seog Kim, M.D.<sup>\*\*†</sup>

요 약 : Leo Kanner가 1943년 발표한 자해 증상을 가진 발달장애아에 대한 연구는, DSM-III-R의 발달장애아 범주에 포함되는 자해 증상을 가진 발달장애아에 대한 약물치료에 대한 근거를 제공한다. 자해 증상을 가진 발달장애아에 대한 약물치료는, 자해 증상을 가진 발달장애아의 자해 증상을 감소시키고, 자해 증상을 가진 발달장애아의 자해 증상을 예방하는 데 도움이 된다. 자해 증상을 가진 발달장애아에 대한 약물치료는, 자해 증상을 가진 발달장애아의 자해 증상을 감소시키고, 자해 증상을 가진 발달장애아의 자해 증상을 예방하는 데 도움이 된다.

중심 단어 : 자해 증상을 가진 발달장애아, 약물치료, DSM-III-R, 자해 증상을 가진 발달장애아의 자해 증상을 감소시키고, 자해 증상을 가진 발달장애아의 자해 증상을 예방하는 데 도움이 된다.

## 서 론

자해 증상을 가진 발달장애아는 DSM-III-R의 발달장애아 범주에 포함되는 자해 증상을 가진 발달장애아에 대한 약물치료에 대한 근거를 제공한다. 자해 증상을 가진 발달장애아에 대한 약물치료는, 자해 증상을 가진 발달장애아의 자해 증상을 감소시키고, 자해 증상을 가진 발달장애아의 자해 증상을 예방하는 데 도움이 된다. 자해 증상을 가진 발달장애아에 대한 약물치료는, 자해 증상을 가진 발달장애아의 자해 증상을 감소시키고, 자해 증상을 가진 발달장애아의 자해 증상을 예방하는 데 도움이 된다.

1943년 Leo Kanner는 자해 증상을 가진 발달장애아에 대한 연구를 발표하였다. 그는 자해 증상을 가진 발달장애아의 자해 증상을 감소시키고, 자해 증상을 가진 발달장애아의 자해 증상을 예방하는 데 도움이 되는 약물을 사용하였다. 자해 증상을 가진 발달장애아에 대한 약물치료는, 자해 증상을 가진 발달장애아의 자해 증상을 감소시키고, 자해 증상을 가진 발달장애아의 자해 증상을 예방하는 데 도움이 된다.

자해 증상을 가진 발달장애아에 대한 약물치료는, 자해 증상을 가진 발달장애아의 자해 증상을 감소시키고, 자해 증상을 가진 발달장애아의 자해 증상을 예방하는 데 도움이 된다. 자해 증상을 가진 발달장애아에 대한 약물치료는, 자해 증상을 가진 발달장애아의 자해 증상을 감소시키고, 자해 증상을 가진 발달장애아의 자해 증상을 예방하는 데 도움이 된다.

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가 . 가 가 5-8). 가 2 가  
가 가 32). 가 33), 가 34).  
0% 8). 69% 가 가  
가 9).  
10~15% 35-37).  
10). 가 38).  
, , (Self - mutilation, SM)  
11). , ,  
12 Favazza 가  
가 3가 39).  
12). (Major SM) , ,  
(secretin) , ,  
13). 가 . 가 .  
, , (Stereotypic SM) ,  
, , / (Su-  
perficial/moderate SM) , 가  
10 1000 40).  
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가 14)15). 가 44), 45), 46).  
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16).  
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17), 가가 18-20), 가 . 가  
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3~4 가 가  
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49)50).  
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Homovalinic , , , ,  
acid가 가 26-28). 가 .  
가 29-31), 가 Baumeister



(1) (108)  
<sup>92)</sup> (Chlopromazine)<sup>93)</sup> (olanzapine)  
(Trifluoperazine)<sup>94)95)</sup> (Thiothixene)<sup>95)</sup> 109-111) Po-  
nazine)<sup>96)</sup> (Trifluoperidol)<sup>93)</sup> (Fluphe- tenza  
(Molindone)<sup>97)</sup> 112) , ,  
(haloperidol) (quitiapine)  
가 가 16 open study , 가  
6 71.5% 113)  
20% 가 8.5% 가 12 (ziprasidone)  
<sup>100)</sup> open label study , 114)  
101) , 가 (3)  
87 (pimizide) 102)  
103) 가 115)116) 10  
(2) 117)  
가 45  
2 118)  
(risperidone) 3) 펌타이드계 작용약물  
20 (1) (Naltrexone)  
가 104) 14 controlled study ,  
가 105)106) 119-121)  
1.0~6.0mg 가 122)123)  
107) , 6 open label  
(clozapine) 가 124)  
8 12  
가  
가 (2) (Secretin)

가 <sup>125)</sup> .  
 가 가 <sup>126)</sup> .

4) 노아드레날린계 작용약물

가  
 가 <sup>127)</sup> .

(1) (Clonidine)  
 2

<sup>128)</sup> 2  
<sup>129)</sup><sup>130)</sup> .

가

(2) (Propranolol)  
 open trial  
<sup>131)</sup> .

5) 그 외의 사용약물

(1) (Lithium) <sup>142)</sup><sup>143)</sup> .

가 가 <sup>132)</sup> .  
 가 가 <sup>133)</sup> .  
<sup>134)</sup> .

(2)  
 (carbamazepine)  
 가 <sup>135)</sup> .

(valproate)  
 open study <sup>136)</sup> .

(lamotrigine)  
 NMDA . Devanzo King  
 13 8

<sup>137)</sup> .

<sup>138)</sup> .

(3) (Amantadine)  
 NMDA  
 가 <sup>139)</sup> .  
<sup>140)</sup> .

(4) (Donepezil)

가 <sup>141)</sup> .

**결론**

가

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가

**Table 1.** Clinical guideline of pharmacotherapy

| Target                      | Medications  |
|-----------------------------|--|
| Hyperactivity, Impulsivity  | Methylphenidate & other stimulants<br>Atypical antipsychotics<br>Clonidine<br>Naltrexone |
| Rigidity, Rituals           | SSRI<br>Atypical antipsychotics  |
| Aggression, Self-injury     | Atypical antipsychotics<br>Li<br>Anticonvulsants<br>Clonidine                            |
| Anxiety, Affective Symptoms | Buspirone<br>Atypical antipsychotics<br>Clonidine  |



- of brain membranes. *Biol Psychiatry* 33 : 762-73
- 26) **Launay JM, Bursztejn C, Ferrari P, et al**(1987) : Catecholamine metabolism in infantile autism : a controlled study of 22 autistic children. *J Autism Dev Dis* 17 : 553-6
  - 27) **Garreau B, Barthelemy C, Jouve J, et al**(1988) : Urinary homovanillic acid levels of autistic children. *Dev Med Child Neurol* 30 : 93-8
  - 28) **Minderaa RB, Anderson GM, Volkmar FR, et al** (1989) : Neurochemical study of dopamine functioning in autistic and normal subjects. *J Am Acad Child Adolesc Psychi-atry* 28 : 190-4
  - 29) **Minderaa RB, Anderson GM, Volkmar FR, et al** (1989) : Whole blood serotonin and tryptophan in autism : temporal stability and the effects of medication. *J Autism Dev Disord* 19 : 129-36
  - 30) **Anderson GM, Horne WC, Chatterjee D, et al**(1990) : The hyper-serotonemia of autism. *Ann NY Acad Sci* 600 : 331-42
  - 31) **Cook EHJ, Leventhal BL, Heller W, et al**(1990) : Autistic children and their first-degree relatives : relationships between serotonin and norepinephrine levels and intelligence. *J Neuropsychiatry Clin Neurosci* 2 : 268-74
  - 32) **Cook EH, Leventhal BL**(1996) : The serotonin system in autism. *Curr Opin Pediatr* 8 : 348-54
  - 33) **Chugani DC, Muzik O, Rothermel R, et al**(1997) : Altered serotonin synthesis in the dentatohalamocortical pathway in autistic boys. *Ann Neurol* 42 : 666-9
  - 34) **McDougle CJ, Naylor ST, Cohen DJ, et al**(1996) : Effects of tryptophan depletion in drug-free adults with autistic disorder. *Arch Gen Psychiatry* 53 : 993-1000
  - 35) **Panksepp J**(1979) : A neurochemical theory of autism. *Trends Neurosci* 2 : 174-7
  - 36) **Willemsen-Swinkels SN, Buitelaar JK, Weijnen FG, et al**(1996) : Plasma beta-endorphin concentrations in people with learning disability and self-injurious and/or autistic behaviour. *Br J Psychiatry* 168 : 105-9
  - 37) **Tordjman S, Anderson GM, McBride PA, et al** (1997) : Plasma beta-endorphin, adrenocorticotrophic hormone, and cortisol in autism. *J Child Psychol Psychiatry* 38 : 705-15
  - 38) **Modahl C, Green L, Fein D, et al**(1998) : Plasma oxytocin levels in autistic children. *Biol Psychiatry* 43 : 270-7.
  - 39) **Favazza A**(1996) : *Bodies under siege : Self-mutilation and body modification in culture and psychiatry.* Baltimore : Johns Hopkins University Press
  - 40) **Favazza A, DeRosear L, Conterio K**(1989) : Self-mutilation and eating disorders. *Suicide Life-Threat Behav* 19 : 352-361
  - 41) **Schaffer CB, Carroll J, Abramowitz SI**(1982) : Self-mutilation and the borderline personality. *J Nerv Ment Dis* 170 : 468-473
  - 42) **Pfohl B.** *Histrionic personality disorder*(1991) : *J Pers Disord* 5 : 150-165
  - 43) **Virkkunen M**(1976) : Self-mutilation in antisocial personality disorder. *Acta Psychiatr Scand* 54 : 347-352
  - 44) **Pitman RK**(1990) : Self-mutilation in combat related post-traumatic stress disorder. *Am J Psychiatry* 147 : 123-124
  - 45) **Coons PM, Milstein V**(1990) : Self-mutilation associated with dissociative disorders. *Dissociation* 3 : 81-87
  - 46) **Parkin JR, Eagles JM**(1993) : Bloodletting in bulimia nervosa. *Br J Psychiatry* 162 : 246-248
  - 47) **Hawton K**(1990) : Self-cutting. In *Hawton K, Cowen P*(Ed), *Dilemmas and difficulties in the management of psychiatric patients.* Oxford : Oxford University Press.
  - 48) **Pawlicki CM, Gaumer C**(1993) : Nursing care of the self-mutilating patient. *Bull Menninger Clin* 57 : 380-389
  - 49) **Favazza A**(1998) : The coming of age of self-mutilation. *J Ner Mental Disease* 186 : 259-68
  - 50) **Rockland LH**(1987) : A supportive approach : Psychodynamically oriented supportive therapy-treatment of border-line patients who self-mutilate. *J Pers Disord* 1 : 350-355
  - 51) **Baumeister, AA, Frye, GR, Schroeder, SR**(1984) : Neurochemical correlates of self-injurious behaviour. In : *Mulick JL, Mallory BL* editors. *Transitions in Mental Retardation : Advocacy, Technology and Science.* Nor-wood, NJ : Ablex, pp207-228
  - 52) **Deb, S**(1998) : Self-injurious behaviour as part of genetic syndromes. *British Journal of Psychiatry* 172 : 385-388
  - 53) **Breese GR et al**(1984) : Neonatal-6-hydroxydopamine treatment : Model of susceptibility for self-mutilation in the Lesch-Nyhan syndrome. *Pharmacology and Biochemistry of Behavior* 21 : 459-461
  - 54) **Sandman CA, Hebrick WP**(1995) : Opiate mechanisms in self-injury. *Mental Retardation and Developmental Disabilities Research Reviews* 1 : 130-136
  - 55) **Thompson T et al**(1994) : Opioid antagonist effects on self-injury in adults with mental retardation : Response form and location as determinants of medication effects. *American Journal on Mental Retardation* 99 : 85-102
  - 56) **Thompson T et al**(1994) : Neurobehavioral mechanisms of drug action in developmental disabilities. In :

- Thompson T, Gray D editors. *Destructive Behavior in Developmental Disabilities : Diagnosis and Treatment*. Thousand Oaks, CA : Sage, pp133-180
- 57) Nyhan WL et al(1980) : Serotonergic approaches to the modification of behavior in the Lesch-Nyhan syndrome. *Applied Research in Mental Retardation* 1 : 25-40
  - 58) Ratey J, Sovner R, Parks A, Roquentine K(1991) : Buspirone treatment of aggression and anxiety in mentally retarded patients : a multiple-baseline, placebo lead-in study. *Journal of Clinical Psychiatry* 52 : 159-162
  - 59) Gordon C T, State RC, Nelson JE, Hamburger SD, Rapoport JL(1993) : A double-blind comparison of clomipramine, desipramine, and placebo in the treatment of autistic disorder. *Archives of General Psychiatry* 50 : 441-447
  - 60) Lewis, MH, Bodfish JW, Powell SB, Golden RN (1995) : Clomipramine treatment for stereotype and related repetitive movement disorders associated with mental retardation. *American Journal on Mental Retardation* 100 : 299-312
  - 61) Lewis MH, Bodfish JW, Powell SB, Parker DE, Golden RN(1996) : Clomipramine treatment for self-injurious behavior of individuals with mental retardation : a double-blind comparison with placebo. *American Journal on Mental Retardation* 100 : 654-665
  - 62) Geller E, Ritvo ER, Freeman BJ(1982) : Preliminary observations on the effects of fenfluramine on blood serotonin and symptoms in three autistic boys. *N Engl J Med* 307 : 165-9
  - 63) Ritvo ER, Freeman BJ, Geller E, et al(1983) : Effects of fenfluramine on 14 outpatients with the syndrome of autism. *J Am Acad Child Psychiatry* 22 : 549-58
  - 64) Schuster CR, Lewis M, Seiden LS(1986) : Fenfluramine : neurotoxicity. *Psychopharmacol Bull* 22 : 148-51
  - 65) Realmuto GM, Jensen J, Klyklyo W, et al(1986) : Untoward effects of fenfluramine in autistic children. *J Clin Psychopharmacol* 6 : 350-5
  - 66) McDougle CJ, Price LH, Volkmar FR, et al(1992) : Clomipramine in autism : preliminary evidence of efficacy (case study). *J Am Acad Child Adolesc Psychiatry* 31 : 746-50
  - 67) Sanchez LE, Campbell M, Small AM, et al(1996) : A pilot study of clomipramine in young autistic children. *J Am Acad Child Adolesc Psychiatry* 35 : 537-44
  - 68) McDougle CJ, Naylor ST, Cohen DJ, et al(1996) : A double-blind, placebo-controlled study of fluvoxamine in adults with autistic disorder. *Arch Gen Psychiatry* 53 : 1001-8
  - 69) Cook EH, Rowlett R, Jaselskis C, et al(1992) : Fluoxetine treatment of children and adults with autistic disorder and mental retardation. *J Am Acad Child Adolesc Psychiatry* 31 : 739-45
  - 70) DeLang GR, Teague LA, McSwain KM(1998) : Effects of fluoxetine treatment in young children with idiopathic autism. *Dev Med Child Neurol* 40 : 551-62
  - 71) Ozbayrak KR, Sertraline in PDD[letter](1997) : *J Am Acad Child Adolesc Psychiatry* 36 : 7-8
  - 72) Hellings JA, Kelley LA, Gabrielli WF, et al(1996) : Sertraline response in adults with mental retardation and autistic disorder. *J Clin Psychiatry* 57 : 333-6
  - 73) Posey DJ, Litwiller M, Koburn A, McDougle CJ (1999) : Paroxetine in autism[letter]. *J Am Acad Child Adolesc Psychiatry* 38 : 111-2
  - 74) Davanzo PA, Belin TR, Widawski MH, King BH (1998) : Paroxetine treatment of aggression and self-injurious persons with mental retardation. *Am J Ment Retard* 102 : 427-37
  - 75) Armenteros J, Lewis JE(2002) : Citalopram treatment for impulsive aggression in children and adolescents : an open pilot study. *J Am Acad Child Adolesc Psychiatry* 41 (5) : 522-9
  - 76) Ratey JJ, Sovner R, Mikkelsen E, et al(1989) : Buspirone therapy for maladaptive behavior and anxiety in developmentally disabled persons. *J Clin Psychiatry* 50 : 382-4.
  - 77) Ratey J, Sovner R, Parks A, et al(1991) : Buspirone treatment of aggression and anxiety in mentally retarded patients : a multiple-baseline, placebo lead-in study. *J Clin Psychiatry* 52 : 159-62
  - 78) Buitelaar JK, Van der Gaag RJ, Van der Hoeven J (1998) : Effects of buspirone in the management of anxiety and irritability in children with pervasive developmental disorders : open pilot data. *J Clin Psychiatry* 59 : 56-9
  - 79) Aman MG, White AJ, Field C(1984) : Chlorpromazine effects on stereotypic and conditioned behaviour of severely retarded patients-a pilot study. *Journal of Mental Deficiency Research* 28 : 253-260
  - 80) Quintana H, Birmaher B, Stedje D, Lennon S, Freed, J, Bridge J et al(1995) : Use of methylphenidate in the treatment of children with autistic disorder. *Journal of Autism and Developmental Disorders* 25 : 283-294
  - 81) Farber JM(1987) : Psychopharmacology of self-injurious behavior in the mentally retarded. *Journal of the American Academy of Child and Adolescent Psychiatry*

- 26 : 296-302
- 82) **Smith DA, Perry PJ**(1992) : Nonneuroleptic treatment of disruptive behavior in organic mental syndromes. *Annals of Pharmacotherapy* 26 : 1400-1408
  - 83) **Aman MG, Singh NN**(1982) : Methylphenidate in severely retarded residents and the clinical significance of stereotypic behavior. *Applied Research in Mental Retardation* 3 : 345-358
  - 84) **Le Vann LJ**(1971) : Clinical comparison of haloperidol with chlorpromazine in mentally retarded children. *American Journal of Mental Deficiency* 75 : 719-723
  - 85) **Abbott P, Blake A, Vineze L**(1965) : Treatment of mentally retarded with thioridazine. *Diseases of the Nervous System* 26 : 583-585
  - 86) **Ernst M, Magee HJ, Gonzales NM, Locascio JJ, Rosenberg CR, Campbell M**(1992) : Pimozide in autistic children. *Psychopharmacology Bulletin* 28 : 187-191.
  - 87) **Kurland AA, Goldberg JB**(1970) : Piperacetazine (Quide) in the management of behavioral disorders in mildly retarded institutionalized boys. *Current Therapeutic Research* 12 : 798-804
  - 88) **Le Vann LJ**(1969) : Haloperidol in the treatment of behavioural disorders in children and adolescents. *Canadian Psychiatric Association Journal* 14 : 217-220
  - 89) **McDougle CJ, Holmes JP, Bronson MR, Anderson GM, Volkmar FR, Price LH, Cohen DJ**(1997) : Risperidone treatment of children and adolescents with pervasive developmental disorders : A prospective open-label study. *J Am Acad Child Adolesc Psychiatry* 36 : 685-693
  - 90) **Purdon SE, Lit W, Labelle A, Jones BD**(1994) : Risperidone in the treatment of pervasive developmental disorder. *Canadian Journal of Psychiatry* 39 : 400-405
  - 91) **Van Hemert JC**(1975) : Pipamperone (Dipiperon, R 3345) in troublesome mental retardates : A double-blind placebo controlled cross-over study with long-term follow-up. *Acta Psychiatrica Scandinavica* 52 : 237-245
  - 92) **Aman MG, Singh N**(1988) : Patterns of drug use, methodological considerations, measurement techniques, and future trends. In : Aman MG, Singh NN, editors. *Psychopharmacology and the developmental disabilities*. New York : Springer 1-28
  - 93) **Campbell M, Fish B, Shapiro T, Floyd A**(1972) : Acute responses of schizophrenic children to a sedative and a "stimulating" neuroleptic : a pharmacologic yardstick. *Curr Therap Res* 14 : 759-66
  - 94) **Fish B, Shapiro T, Campbell M**(1966) : Long term prognosis and the response of schizophrenic children to drug therapy : a controlled study of trifluoperazine. *Am J Psychiatry* 123 : 32-9
  - 95) **Wolpert A, Hagamen MB, Merlis S**(1967) : A comparative study of thiothixene and trifluoperazine in childhood schizophrenia. *Curr Therap Res* 9 : 482-5
  - 96) **Faretra G, Dooher L, Dowling J**(1970) : Comparison of haloperidol and fluphenazine in disturbed children. *Am J Psychiatry* 126 : 1670-3
  - 97) **Campbell M, Fish B, Shapiro T, Floyd A**(1971) : Study of molindone in disturbed preschool children. *Curr Therap Res* 13 : 28-33
  - 98) **Anderson LT, Campbell M, Graça DM, et al**(1984) : Haloperidol in the treatment of infantile autism : effects on learning and behavioral symptoms. *Am J Psychiatry* 141 : 1195-202
  - 99) **Anderson LT, Campbell M, Adams P, et al**(1989) : The effects of haloperidol on discrimination learning and behavioral symptoms in autistic children. *J Autism Dev Disord* 19 : 227-39
  - 100) **Perry R, Campbell M, Adams P, et al**(1989) : Long-term efficacy of haloperidol in autistic children : continuous versus discontinuous administration. *J Am Acad Child Adolesc Psychiatry* 28 : 87-92
  - 101) **Campbell M, Adams P, Perry R, et al**(1988) : Tardive and withdrawal dyskinesia in autistic children : a prospective study. *Psycho-pharmacol Bull* 24 : 251-5
  - 102) **Naruse H, Nagahata M, Nakane Y, et al**(1982) : A multi-center double-blind trial of pimozide (Orap), haloperidol and placebo in children with behavioral disorders, using cross-over design. *Acta Paedopsychiatrica* 48 : 173-84
  - 103) **Ernst M, Magee HJ, Gonzalez NM, et al**(1992) : Pimozide in autistic children. *Psychopharmacol Bull* 28 : 187-91
  - 104) **Hardan A, Johnson K, Johnson C, et al**(1996) : Case study : risperidone treatment of children and adolescents with developmental disorders. *J Am Acad Child Adolesc Psychiatry* 35 : 1551-6
  - 105) **Geller WK, Zuiderwijk PB**(1998) : Risperidone-induced hepatotoxicity?[letter]. *J Am Acad Child Adolesc Psychiatry* 37 : 246-7
  - 106) **Kumra S, Herion D, Jacobsen LK, et al**(1997) : Case study : risperidone-induced hepatotoxicity in pediatric patients. *J Am Acad Child Adolesc Psychiatry* 36 : 701-5
  - 107) **McDougle CJ, Holmes JP, Carlson DC, et al**(1998) : A double-blind, placebo-controlled study of risperidone in adults with autistic disorder and other pervasive deve-

- lopmental disorders. *Arch Gen Psychiatry* 55 : 633-41
- 108) **Zuddas AL et al**(1996) : Clinical effects of clozapine on autistic disorder[letter]. *Am J Psychiatry* 153 : 738
- 109) **Horriġan JP, Barnhill LJ, Courvoisie HE**(1997) : Olanzapine in PDD[letter]. *J Am Acad Child Adolesc Psychiatry* 36 : 1166-7
- 110) **Rubin M**(1997) : Use of atypical antipsychotics in children with mental retardation, autism and other developmental disability. *Psychiatry Ann* 27 : 219-21
- 111) **Malek-Ahmadi P, Simonds JF**(1998) : Olanzapine for autistic disorder with hyperactivity[letter]. *J Am Acad Child Adolesc Psychiatry* 37 : 902
- 112) **Potenza MN, Holmes JP, Kaner SJ, McDougle CJ** (1999) : Olanzapine treatment of children, adolescents, and adults with pervasive developmental disorders : an open labeled pilot study. *J Clin Psychopharmacol* 19:37-44
- 113) **Martin A, Kocing K, Seahill L, Bregman J**(1999) : Open label quetiapine in the treatment of children and Adolescents with autistic disorder. *J Child Adolesc Psychopharmacol* 9 : 99-107
- 114) **McDougle CJ, Kem DL, Posey DJ**(2002) : Case series : use of ziprasidone for maladaptive symptoms in youth with autism. *J Am Acad Child Adolesc Psychiatry* 41 : 921-7
- 115) **Campbell M, Fish B, David R, et al**(1972) : Response to triiodothyronine and dextroamphetamine : a study of preschool schizophrenic children. *J Autism Childhood Schizophr* 2 : 343-57
- 116) **Bloom ASR**(1988) : Methylphenidate-induced delusional disorder in a child with attention deficit disorder with hyperactivity. *J Am Acad Child Adolesc Psychiatry* 27(1) : 88-9
- 117) **Quintana H, Birmaher B, Stedje D, et al**(1995) : Use of methylphenidate in the treatment of children with autistic disorder. *J Autism Dev Disord* 25 : 283-94
- 118) **Aman MG, Marks RE, Turbott SH, et al**(1991) : Clinical effects of methylphenidate and thioridazine in intellectually subaverage children. *J Am Acad Child Adolesc Psychiatry* 30 : 246-56
- 119) **Sandman CA**(1988) : Beta-endorphin dysregulation in autistic and self-injurious behavior : a neurodevelopmental hypothesis. *Synapse* 2 : 193-199
- 120) **Siegel A, Schubert K**(1995) : Neurotransmitters regulating feline aggressive behavior. *Reviews in the Neurosciences* 6 : 47-61
- 121) **Ireland WW**(1898) : The mental affections of children, idiocy, imbecility and insanity. London : J, A Churchill
- 122) **Campbell M, Anderson LT, Small AM, Adams P, Gonzalez NM, Ernst M**(1993) : Naltrexone in autistic children : behavioral symptoms and attentional learning. *Journal of the American Academy of Child and Adolescent Psychiatry* 32 : 1283-1291.
- 123) **Willemsen-Swinkels SH, Buitelaar JK, Nijhof GJ, van England H**(1995) : Failure of naltrexone hydrochloride to reduce self-injurious and autistic behavior in mentally retarded adults. Double-blind placebo-controlled studies. *Archives of General Psychiatry* 52 : 766-73
- 124) **Willemsen-Swinkels SN, Buitelaar JK, Van Berckelaer-Onnes IA, et al**(1999) : Brief report : six-months continuation treatment in naltrexone-responsive children with autism : an open-label case-control design. *J Autism Dev Disord* 29 : 167-9
- 125) **Owley et al**(2001) : Multisite, double-blind placebo controlled trial of porcine secretin in autism. *J Am Acad Child Adolesc Psychiatry* 40 : 1293-9
- 126) **Kern JK et al**(2002) : Efficacy of porcine secretin in children with autism and pervasive developmental disorder. *J Aut Dev Disord* 32 : 153-60
- 127) **Ratey JJ, Mikkelsen E, Sorgi P, Zuckerman HS, Polakoff S, Bemporad J et al**(1987) : Autism : the treatment of aggressive behaviors. *Journal of Clinical Psychopharmacology* 7 : 35-41
- 128) **Fankhauser MP, Karumanchi VC, German ML, et al** (1992) : A double-blind, placebo-controlled study of the efficacy of transdermal clonidine in autism. *J Clin Psychiatry* 53 : 77-82
- 129) **Fankhauser MP, Karumanchi VC, German ML, Yates A, Karumanchi SD**(1992) : A double-blind, placebo-controlled study of the efficacy of transdermal clonidine in autism. *Journal of Clinical Psychiatry* 53 : 77-82
- 130) **Jaselskis CA, Cook EH, Fletcher KE, Leventhal BL** (1992) : Clonidine treatment of hyperactive and impulsive children with autistic disorder. *Journal of Clinical Psychopharmacology* 12 : 322-327
- 131) **Ratey JJ, Bemporad J, Sorgi P, et al**(1987) : Brief report : open trial effects of beta-blockers on speech and social behaviors in 8 autistic adults. *J Autism Dev Disord* 17 : 439-46
- 132) **Komoto JM, Usui S, Hirata J**(1984) : Infantile autism and affective disorder. *J Autism Dev Disord* 14 : 81-4
- 133) **Worrall EP, Moody JP, Naylor GJ**(1975) : Lithium in non-manic depressives : Antiaggressive effect and red blood cell lithium values. *British Journal of Psychiatry* 126 : 464-468
- 134) **Buitelaar JK**(1993) : Self-injurious behavior in retarded children, clinical phenomena and biological mechanisms.

- Acta Paedo-psychiatrica 56 : 105-11
- 135) **Gillberg C** (1991) : The treatment of epilepsy in autism. J Autism Dev Disord 21 : 61-77
- 136) **Plioplys A** (1994) : Autism : electroencephalographic abnormalities and clinical improvement with valproic acid. Arch Pediatr Adolesc Med 148 : 220-2
- 137) **Davanzo PA, King BH** (1996) : Open trial lamotrigine in the treatment of self-injurious behavior in an adolescent with profound mental retardation. Journal of Child and Adolescent Psychopharmacology 6 : 273-279
- 138) **Belsito KM et al** (2001) : Lamotrigine therapy for autistic disorder : a randomized, double-blind, placebo-controlled trial. J Autism Dev Disord 31 : 175-81
- 139) **King BH et al** (2001) : Case series : amantadine open-label treatment of impulsive and aggressive behavior in hospitalized children with developmental disabilities. J Am Acad Child Adolesc Psychiatry 40 : 654-57
- 140) **King BH et al** (2001) : Double-blind placebo-controlled study of amantadine hydrochloride in the treatment of children with autistic disorder. J Am Acad Child Adolesc Psychiatry 40 : 658-65
- 141) **Susman, Ed** (2001) : Donepezil earns talking points in autism[Miscellaneous]. Inpharma Weekly 1313 : 11
- 142) **Howlin P, Rutter M** (1987) : Treatment of autistic children. New York : Wiley, Sons
- 143) **Howlin P** (1998) : Practitioner review : psychological and educational treatments for autism. J Child Psychol Psychiatry 39 : 307-22

**ABSTRACT**

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**DRUG THERAPY FOR DEVELOPMENTAL DISORDER  
PATIENTS WITH SELF-MUTILATION**

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The autistic disorder is identified as an independent clinical entity, since the first description of Leo Kanner. The etiologies of the autistic disorder are almost unclear and the autistic disorder has several abnormalities in aspect of morphology and function of brain. Self-mutilation is observed in the low functioning autistic patients, and early treatment for self mutilation are needed in order not to be chronic. This article reviewed the drugs for the several symptoms of the autistic disorder, especially for self-mutilation. The serotonin reuptake inhibitors does not have clear primary anti-aggressive effects. The dopamine blockers have considerable effects in order to decrease aggression and self injury, and the risperidone is most recommended because of side effects of conventional drugs. The naltrexone does not have consistent study results yet. The clonidine has aggression-decreasing effect. Also lithium is effective on the treatment for aggressive and self-injurious behaviors. And the anticonvulsants including carbamazepine are effective on aggressive explosive behaviors. In the future the pharmacotherapy for self-mutilation will be advanced through stable diagnosis and measurement of treatment response.

**KEY WORDS** : Autistic disorder · Self-mutilation · Drug therapy.