

Neuropsychological profile in a twin with recovered AN and her healthy pair, and its modification after CRT

Gempeler J , Montañez P.

Abstract

Neuropsychological studies have shown that patients with AN, have difficulties in cognitive flexibility.

Specifically, they appear to have difficulties in changing from one cognitive strategy to another and from one stimulus to another, as well as in the performance of simultaneous tasks. This inflexibility is a prevalent thinking style in AN, and seems to prevail even with gain weight.

The set shifting and central coherence deficiencies have been considered as a central component in anorexic pathology, both in the origin and the maintenance of the illness.

Cognitive remediation therapy has been used to strengthen thinking abilities using exercises that aim to make the cognitive style more flexible, in order to brake the resistance to change.

This case study compared the neuropsychological profile of two discordant dizygotic twins. One of them presented AN and the other was used as its healthy control. The twin that presented the ED recovered weight, but persisted with a rigid cognitive style that was expressed in her stereotyped eating behaviors, obsessive symptoms of order, symmetry and exactitude, as well as resistance to change. This twin received 10 CRT sessions according to the Maudsley protocol, as well as the usual treatment for ED, while the healthy twin did not received any treatment at all.

The healthy twin had a higher neuropsychological global cognitive profile, without difficulties in the visual perceptual or visual constructional organization. Meanwhile the twin with recovered AN showed marked perceptual difficulties, but had higher scores in attentional and perceptual functions.

Analyzing the neuropsychological profiles before and after CRT intervention, we found that the twin that received the intervention had a significant improvement in all evaluated levels, specifically in attention and problem solving abilities, even though the profile that she has at present still presents predominant verbal abilities over visual constructional ones.

Those results allow us to conclude that CRT appears to be an effective strategy for the modification of information processing strategies.

Studies with more twins are needed in order to clarify if those cognitive styles are state or trait markers.

OBJECTIVE

Compare the neuropsychological profile of a twin patient diagnosed with AN I, before and after the application of the CRT protocol, and treatment as usual for her ED, as well as with her twin profile.

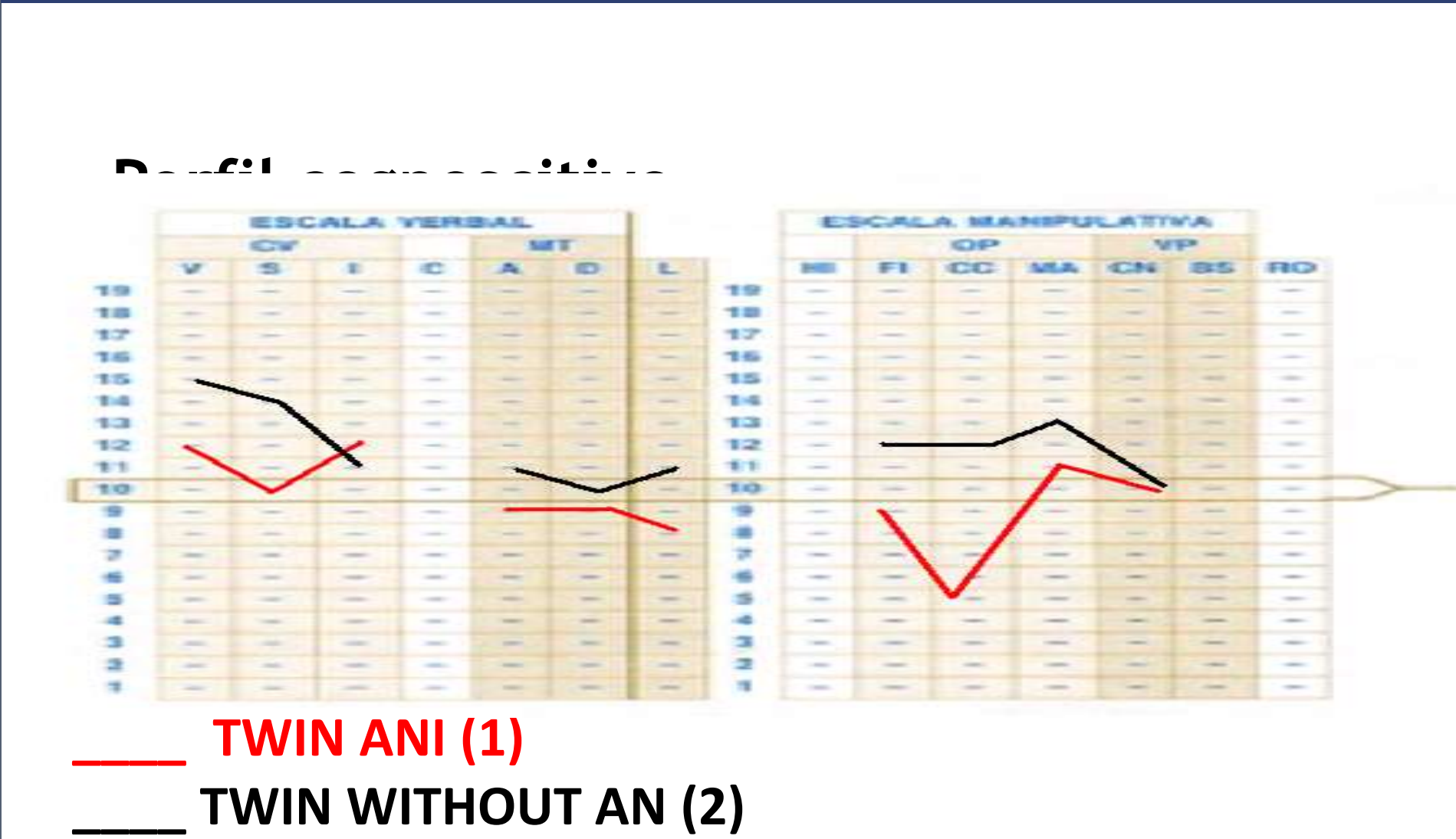
Method

Neuropsychological evaluation of two dizygotic twins , one of them with AN I.

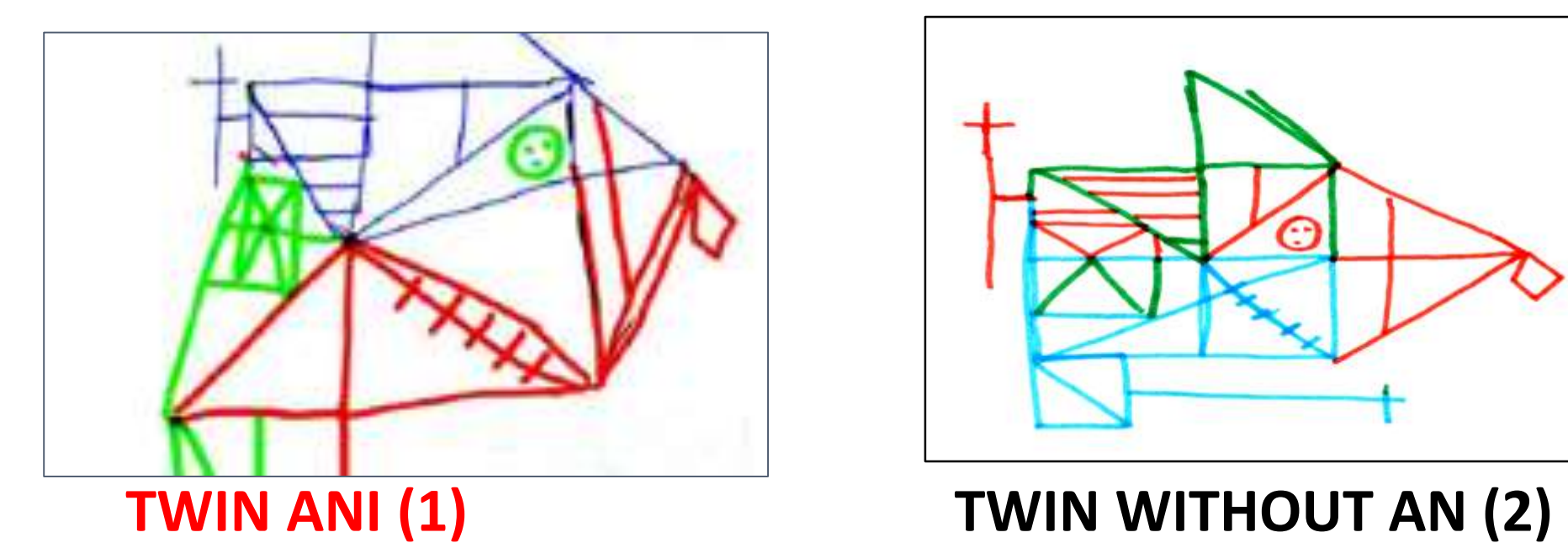
Application of the CRT protocol (Maudsley)

Neuropsychological re-evaluation of the twin with ANI.

Initial neuropsychological evaluation. Twins profiles



Visoconstructional functions



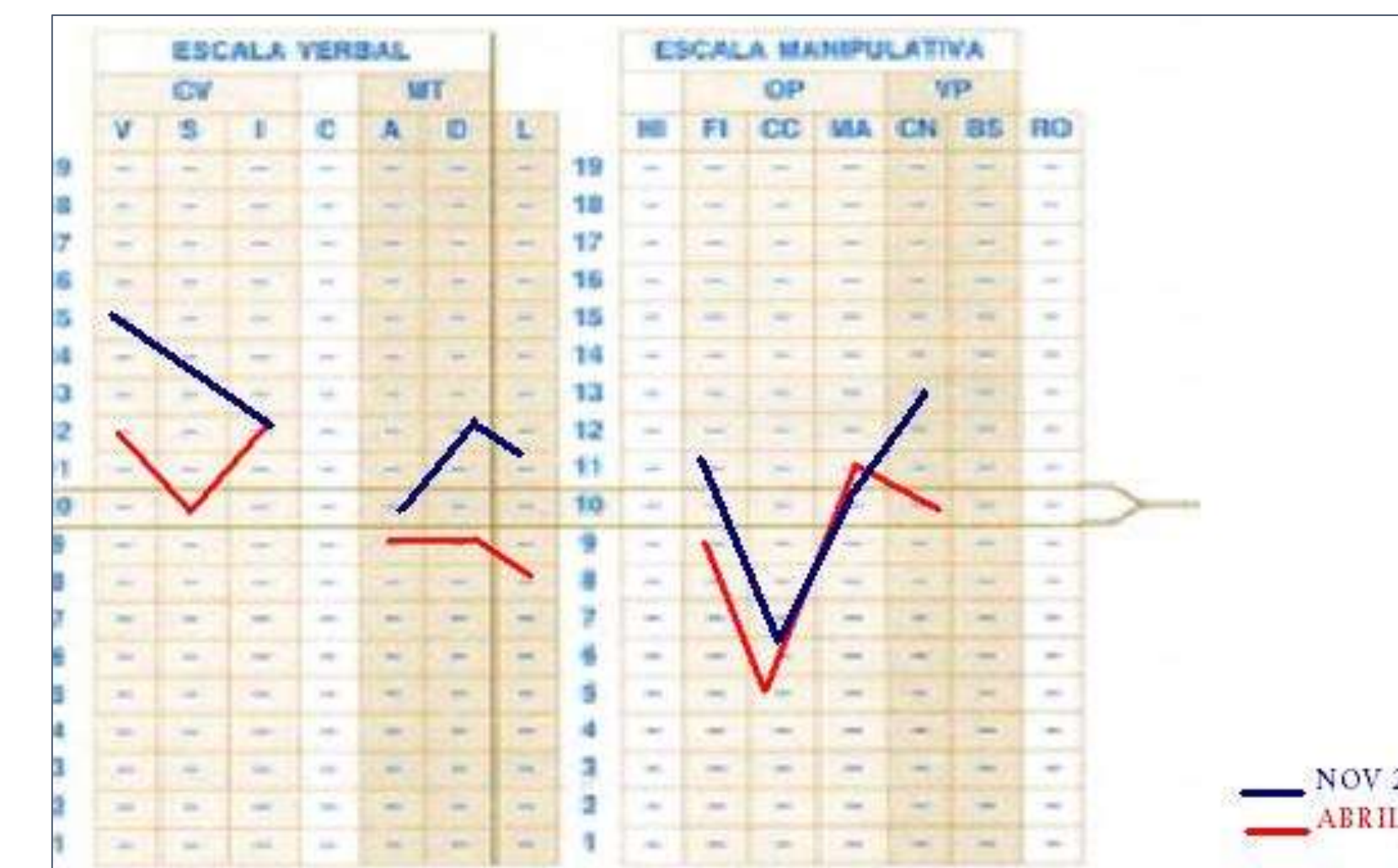
color order x minute : blue, red, green, brown

Attention and concentration

PASAT 3"	Correctas 1ª	21/30	PASAT 2"	Correctas 1ª	26/30
	Correctas 2a	22/30		Correctas 2a	22/30
	Total	43		Total	48
	Resp. Incorrectas	7		Resp. Incorrectas	2

Profile comparison before and after treatment as usual and CRT protocol (twin with ANI)

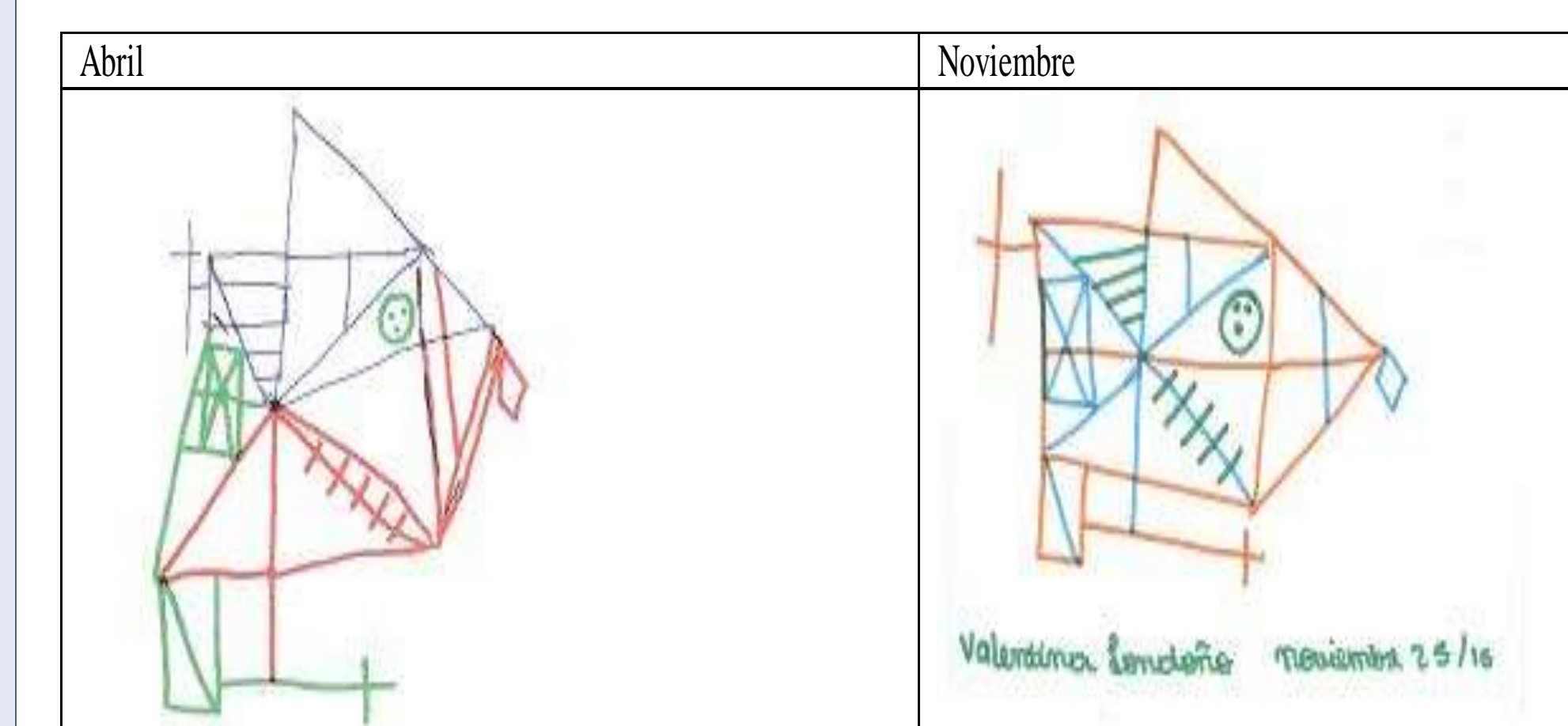
WAIS scores



Attention and concentration

PASAT 3"	Correctas 1ª Mitad	21/30	29/30	PASAT 2"	Correctas 1ª Mitad	26/30	27/30
	Correctas 2a	22/30	28/30		Correctas 2a Mitad	22/30	23/30
	Total	43	57		Total	48	50
	Resp. Incorrectas	7			Resp. Incorrectas	2	

Visoconstructional functions



Executive-conceptual functions

	Puntaje Esperado	Puntaje Obtenido		Errores	Respuestas Correctas
		Abril	Nov		
WCST Categorías	6	6	6	2 perseveraciones	36/48 46/48
STROOP		A 110	110	1 error de intrusión	
		B 90	90		
		C 48	60		
PRUEBA DE REVERSION	9	2	2		
TORRE DE LONDRES	12	12	12		

Conclusions

Analyzing the neuropsychological profiles before and after CRT intervention, we found that the twin that received the intervention had a significant improvement in all evaluated levels, specifically in attention and problem solving abilities, even though the profile that she has at present still presents predominant verbal abilities over visual constructional ones.

Those results allow us to conclude that CRT appears to be an effective strategy for the modification of information processing strategies.

References

Baldock E, Tchanturia K. Translating laboratory research into practice: Foundations, functions and future of cognitive remediation therapy for anorexia nervosa. *Therapy* 2007;3:285-293

Cwojdzinska A, Matkowska-Repulska K, Rybakowski F. "Cognitive remediation therapy in adolescent anorexia nervosa - case report" *Psychiatr Pol*. 2009 Jan-Feb;43(1):115-24.

Daynes H, Tchanturia K. Cognitive remediation therapy as an intervention for acute anorexia nervosa. A case report. *Eur Eat Disord Rev* 2005; 13:311-316.

Easter, A., and Tchanturia, K., (2008). Cognitive Remediation Therapy for Anorexia Nervosa: A Qualitative Study of Therapists' End of Treatment Letters. *Clinical Child Psychology and Psychiatry* (in press)

Guides NICE. (2004).

Lopez C, Tchanturia K, Stahl D, Treasure J. (2008) Central coherence in eating disorders: a systematic review. *Psychol Med*. 2008 38(10):1393-404

Lopez C, Tchanturia K, Stahl D, Treasure J. (2008) Weak Central Coherence in Eating Disorder: A Step towards looking for an Endophenotype of Eating Disorders. *Journal of Clinical and Experimental Neuropsychology* DOI:10.1080/13803390802036092

Lopez C, Tchanturia K, Stahl D, Booth R, Holliday J, Treasure J. An examination of the concept of central coherence in women with anorexia nervosa. *International Journal of Eating Disorders*. 41:2 143-152, 2008

Lopez C, Tchanturia K, Stahl D, Treasure J. Central coherence in women with bulimia nervosa. *International Journal of eating disorders*. 41:4, 340-347, 2008.

Lopez C, Tchanturia K, Stahl D, Treasure J. "Weak central coherence in eating disorders: a step towards looking for an endophenotype of eating disorders" *Clin Exp Neuropsychol*. 2009 Jan;31(1):117-25.

Whitney, J., Easter, A., and Tchanturia, K., (2008). ServiceUsers' Feedback on cognitive training in the treatment of Anorexia Nervosa. *International Journal of Eating Disorders*. 41(6):542-50

Roberts ME, Tchanturia K, Stahl D, Treasure J. "A systematic review and meta-analysis of set-shifting ability in eating disorders. *Psychol Med*. 2007 Aug;37(8):1075-84.

Roberts ME, Tchanturia K, Treasure JL. "Exploring the neurocognitive signature of poor set-shifting in anorexia and bulimia nervosa". *J Psychiatr Res*. 2010. April 14.

Southgate L, Tchanturia K, Treasure J. (2005) Building a model of the aetiology of eating disorders by translating experimental neuroscience into clinical practice. *Journal of Mental Health* 14 (6) 553-566.

Southgate L, Tchanturia K, Treasure J. "Neuropsychological studies in eating disorders: a review". Nova Science publishers, 2009.

Tchanturia K, Whitney J, Treasure J. Can cognitive exercises help treat anorexia nervosa? A case study. *Eat and Weight Disord* RevieBaldock E, Tchanturia K. Translating laboratory research into practice: Foundations, functions and future of cognitive remediation therapy for anorexia nervosa. *Therapy* 2007;3:285-293

Cwojdzinska A, Matkowska-Repulska K, Rybakowski F. "Cognitive remediation therapy in adolescent anorexia nervosa - case report" *Psychiatr Pol*. 2009 Jan-Feb;43(1):115-24.

Daynes H, Tchanturia K. Cognitive remediation therapy as an intervention for acute anorexia nervosa. A case report. *Eur Eat Disord Rev* 2005; 13:311-316.

Easter, A., and Tchanturia, K., (2008). Cognitive Remediation Therapy for Anorexia Nervosa: A Qualitative Study of Therapists' End of Treatment Letters. *Clinical Child Psychology and Psychiatry* (in press)

Guides NICE. (2004).

Lopez C, Tchanturia K, Stahl D, Treasure J. (2008) Central coherence in eating disorders: a systematic review. *Psychol Med*. 2008 38(10):1393-404

Lopez C, Tchanturia K, Stahl D, Treasure J. (2008) Weak Central Coherence in Eating Disorder: A Step towards looking for an Endophenotype of Eating Disorders. *Journal of Clinical and Experimental Neuropsychology* DOI:10.1080/13803390802036092

Lopez C, Tchanturia K, Stahl D, Booth R, Holliday J, Treasure J. An examination of the concept of central coherence in women with anorexia nervosa. *International Journal of Eating Disorders*. 41:2 143-152, 2008

Lopez C, Tchanturia K, Stahl D, Treasure J. Central coherence in women with bulimia nervosa. *International Journal of eating disorders*. 41:4, 340-347, 2008.

Roberts ME, Tchanturia K, Treasure JL. "Exploring the neurocognitive signature of poor set-shifting in anorexia and bulimia nervosa". *J Psychiatr Res*. 2010. April 14.

Southgate L, Tchanturia K, Treasure J. (2005) Building a model of the aetiology of eating disorders by translating experimental neuroscience into clinical practice. *Journal of Mental Health* 14 (6) 553-566.

Southgate L, Tchanturia K, Treasure J. "Neuropsychological studies in eating disorders: a review". Nova Science publishers, 2009.

Tchanturia K, Campbell I, Morris R, Treasure J. Neuropsychological studies in Anorexia Nervosa. *International Journal of Eating Disorders*. 37, (supplement) : 572-576, 2005.

Tchanturia K, Davies H, Campbell I. "Cognitive remediation therapy for patients with anorexia nervosa: preliminary findings" *Annals of General Psychiatry* 2007; 6:14

Tchanturia K, Davies H, Lopez C, Schmidt U, Treasure J, Wykes T. Neuropsychological task performance before and after cognitive remediation in anorexia nervosa: a pilot case-series. *Psychol Med*. 2008 Sep;38(9):1371-3. Epub 2008 Jun 26.

Tchanturia K, Whitney J, Treasure J. Can cognitive exercises help treat anorexia nervosa? A case study. *Eat and Weight Disord* 2007; 11: 112-117.

Treasure J, Tchanturia K, Schmidt U. (2005) Developing a model of the treatment for eating disorder: using neuroscience research to examine the how rather than the what of change. *Counselling and Psychotherapy Research* 5(3) 1-12

Treasure J, Tchanturia K, Schmidt U. (2005) Developing a model of the treatment for eating disorder: using neuroscience research to examine the how rather than the what of change. *Counselling and Psychotherapy Research* 5(3) 1-12

Contacts

Gempeler, J. Clinical Psychologist, CBT. Equilibrio Ltda.

Montañez, P. Neuropsychologist. Phd. National University.

Bogotá- Colombia