

# Central sensitization in patients with rheumatoid arthritis, osteoarthritis of the knee and ankylosing spondylitis

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Central sensitization is defined as hypersensitivity to pain and plays an important role, along with inflammation, in shaping the pain phenotype in patients with joint disease. The CSI is a screening tool to help clinicians identify patients with key symptoms associated with central sensitization (CS) and quantify the severity of these symptoms.

## Objective

To determine the presentation of central sensitization symptoms and its influence on clinical manifestations in patients with the most frequent rheumatic rheumatoid arthritis, diseases: osteoarthritis of the knee joints, and ankylosing spondylitis.

#### Materials and methods

The study included 43 patients with reliable rheumatoid arthritis, 40 patients with knee osteoarthritis, and 40 patients ankylosing spondylitis. with The following parameters were assessed in all patients: age, duration of disease, pain syndrome severity according to VAS, central sensitization according to CSI scale, neuropathic component severity according to DN4 and Pain DETECT, anxiety/depression according to HADS scale, EQ-5D quality of life, and disease (DAS28, BASDAI) activity and WOMAC total index values in patients with rheumatoid arthritis and ankylosing spondylitis.

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### Results

Signs of CS sensitization were detected in rheumatoid arthritis, in 62.7% (n=27), osteoarthritis of the knee joints in 60% (n=24) and ankylosing spondylitis in 37.5% (n=25). CS contributes to more intense pain, neuropathic features, and leads to a more pronounced decrease in quality of life and functional activity. Signs of CS have a close association with anxiety-depressive disorders

	CSI + RA (n=27)	CSI - RA (n=16)	P				
Age patients RA, age	51,0[42,0;59,0]	53,0[41,0;62,0]	0,9				
Duration RA, age	7,0 [5,0;10,0]	9,0[2,0;18,0]	0,67				
DAS28	5,2 [3,85;5,66]	4,46[3,65;5,35]	0,4				
DN4	4,0 [ 2,0;5,0]	1,0[0,0;2,0]	0,003				
Pain DETECT	14,0[6,0;18,0]	6,0[3,0;9,0]	0,007				
VAS	60,0 [50,0;70,0]	60,0[40,0;70,0]	0,76				
HADS (Anxiety)	10,0[7,0;11,0]	5,0[3,0;6,0]	0,001		CSI + OAk (n= 24)	CSI - OAk (n=16)	P
HADS (Depression)	8,0 [6,0;10,0]	5,0[2,0;10,0]	0,06	Age patients OAk,	51,0[42,0;59,0]	53,0[41,0;62,0]	0,9
EQ-5D	0,52[-0,02;0,52]	0,52[0,52;0,69]	0,02		7,0 [5,0;10,0]	9,0[2,0;18,0]	0,67
				Duration OAk, age  WOMAC  DN4	1367,0 [1051,0;1632,5] 5,0 [4,0;6,0]	860,0 [402,5;1132,0] 2,0 [1,0;3,0]	0,01
	CSI + AS (n= 15)	CSI - AS (n=25)	P	WOMAC	1367,0 [1051,0;1632,5]	860,0 [402,5;1132,0]	0,01
Age patients AS, age	CSI + AS (n= 15) 51,0[42,0;59,0]	CSI - AS (n=25) 53,0[41,0;62,0]	P 0,9	WOMAC DN4	1367,0 [1051,0;1632,5] 5,0 [4,0;6,0]	860,0 [402,5;1132,0] 2,0 [1,0;3,0]	0,00
				WOMAC  DN4  VAS  HADS (Anxiety)	1367,0 [1051,0;1632,5] 5,0 [4,0;6,0] 70,0 [60,0;80,0] 11,0 [8,0;13,5]	860,0 [402,5;1132,0] 2,0 [1,0;3,0] 35,0 [30,0;50,0] 7,0 [4,5;11,5]	0,00
Duration AS, age	51,0[42,0;59,0]	53,0[41,0;62,0]	0,9	WOMAC  DN4  VAS	1367,0 [1051,0;1632,5] 5,0 [4,0;6,0] 70,0 [60,0;80,0]	860,0 [402,5;1132,0] 2,0 [1,0;3,0] 35,0 [30,0;50,0]	0,00
Duration AS, age  DN4	51,0[42,0;59,0] 7,0 [5,0;10,0]	53,0[41,0;62,0] 9,0[2,0;18,0]	0,9	WOMAC  DN4  VAS  HADS (Anxiety)  HADS	1367,0 [1051,0;1632,5] 5,0 [4,0;6,0] 70,0 [60,0;80,0] 11,0 [8,0;13,5]	860,0 [402,5;1132,0] 2,0 [1,0;3,0] 35,0 [30,0;50,0] 7,0 [4,5;11,5]	0,00
Duration AS, age  DN4  Pain DETECT	51,0[42,0;59,0] 7,0 [5,0;10,0] <b>4,0 [ 2,0;5,0]</b>	53,0[41,0;62,0] 9,0[2,0;18,0] 1,0[0,0;2,0]	0,9 0,67 <b>0,003</b>	WOMAC  DN4  VAS  HADS (Anxiety)  HADS	1367,0 [1051,0;1632,5] 5,0 [4,0;6,0] 70,0 [60,0;80,0] 11,0 [8,0;13,5]	860,0 [402,5;1132,0] 2,0 [1,0;3,0] 35,0 [30,0;50,0] 7,0 [4,5;11,5]	0,00
Duration AS, age  DN4  Pain DETECT  VAS	51,0[42,0;59,0] 7,0 [5,0;10,0] 4,0 [ 2,0;5,0] 14,0[6,0;18,0]	53,0[41,0;62,0] 9,0[2,0;18,0] 1,0[0,0;2,0] 6,0[3,0;9,0]	0,9 0,67 0,003 0,007	WOMAC  DN4  VAS  HADS (Anxiety)  HADS	1367,0 [1051,0;1632,5] 5,0 [4,0;6,0] 70,0 [60,0;80,0] 11,0 [8,0;13,5]	860,0 [402,5;1132,0] 2,0 [1,0;3,0] 35,0 [30,0;50,0] 7,0 [4,5;11,5]	0,00
Duration AS, age  DN4  Pain DETECT  VAS  HADS (Anxiety)	51,0[42,0;59,0]  7,0 [5,0;10,0]  4,0 [ 2,0;5,0]  14,0[6,0;18,0]  60,0 [50,0;70,0]	53,0[41,0;62,0] 9,0[2,0;18,0] 1,0[0,0;2,0] 6,0[3,0;9,0] 60,0[40,0;70,0]	0,9 0,67 <b>0,003</b> <b>0,007</b> 0,76	WOMAC  DN4  VAS  HADS (Anxiety)  HADS	1367,0 [1051,0;1632,5] 5,0 [4,0;6,0] 70,0 [60,0;80,0] 11,0 [8,0;13,5]	860,0 [402,5;1132,0] 2,0 [1,0;3,0] 35,0 [30,0;50,0] 7,0 [4,5;11,5]	0,00
Age patients AS, age  Duration AS, age  DN4  Pain DETECT  VAS  HADS (Anxiety)  HADS (Depression)  BASDAI	51,0[42,0;59,0]  7,0 [5,0;10,0]  4,0 [ 2,0;5,0]  14,0[6,0;18,0]  60,0 [50,0;70,0]  10,0[7,0;11,0]	53,0[41,0;62,0] 9,0[2,0;18,0] 1,0[0,0;2,0] 6,0[3,0;9,0] 60,0[40,0;70,0] 5,0[3,0;6,0]	0,9 0,67 0,003 0,007 0,76 0,001	WOMAC  DN4  VAS  HADS (Anxiety)  HADS	1367,0 [1051,0;1632,5] 5,0 [4,0;6,0] 70,0 [60,0;80,0] 11,0 [8,0;13,5]	860,0 [402,5;1132,0] 2,0 [1,0;3,0] 35,0 [30,0;50,0] 7,0 [4,5;11,5]	0,01

#### Conclusion

Chronic joint pain has a mixed multicomponent character, CS along with inflammation plays an important role in pathogenesis and which should maintenance, be considered therapy.