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Objective

Aims of this study are to assess in young adults with CP:

- 1) impairments of the upper extremity
- 2) the interrelations between impairments
- 3) relation between impairments and functional activities

Methods

Increased muscle tone, spasticity, limitations in range of motion (ROM) and reduction in selective motor control (SMC) were assessed in the most affected arm. Spasticity (2 muscle groups) and ROM data (3 joints) were categorized into groups.

Functional activities were measured with the Abilhand Questionnaire (0-46) and self care activities according to the Functional Independence Measure (FIM) (0-7). Spearman correlation coefficients were calculated.

Patients

103 young adults with CP without severe learning disabilities participated in this part of the CP Transition study.

Patient characteristics

- Mean age 17.9 (±1.6) years
- 60% male, 40% female
- Limb distribution: 51% unilateral; 49% bilateral
- GMFCS level: 78% I; 7% II; 5% III; 12% IV
- MACS level: 81% I; 12% II; 5% III; 1% IV; 1% V
- Educational level: 28% high; 34% medium; 40% low

1. Impairments of the upper extremity

Impairments are related to patient characteristics as GMFCS and MACS level.

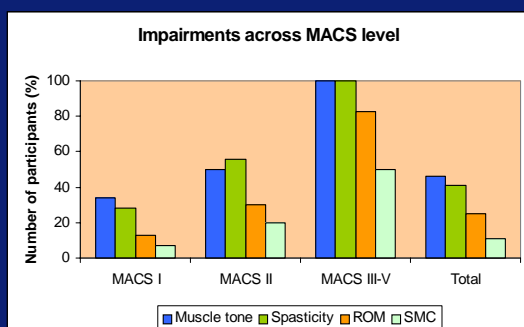


Figure 1. Impairments (% participants) in the total group and across MACS levels

2. Interrelations between impairments

Impairments are interrelated.

Table 1. Interrelations between impairments of the upper limb

Impairments	Spasticity	ROM	SMC
Muscle tone	0.72 **	0.47 **	0.19*
Spasticity	-	0.57 **	0.29 **
ROM	-	-	0.21 *

* p < 0.05, ** p < 0.01

3. Relation between impairments and functional activities

Fair relations are found between impairments and limitations in functional activities.

Table 2. Relations between impairments and functional activities in unilateral and bilateral CP

Impairments	Unilateral CP		Bilateral CP	
	FIM	ABILHAND	FIM	ABILHAND
Muscle Tone	-0.13	-0.15	-0.41**	-0.27*
Spasticity	-0.13	-0.31*	-0.46**	-0.47**
ROM	-0.16	-0.12	-0.45**	-0.03
SMC	-0.40**	-0.37*	-0.31*	-0.43**

* p < 0.05, ** p < 0.01

Typical examples in bilateral CP

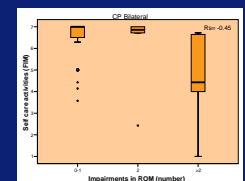
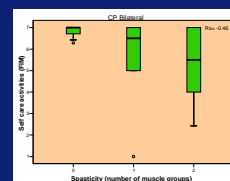


Figure 2 and 3. Relations between spasticity, ROM and self care activities

Clinical messages

In young adults with CP, in the upper limb:

- 59% has one or more impairments
- Impairments are interrelated and are related to patient characteristics as GMFCS and MACS level
- Impairments are fairly related to functional activities, especially in bilateral CP

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