Klinik für Neurolgie Bereich Bewegungsstörungen



Therapeutic Effects of Positioning Patients with CNS-lesion-RCT

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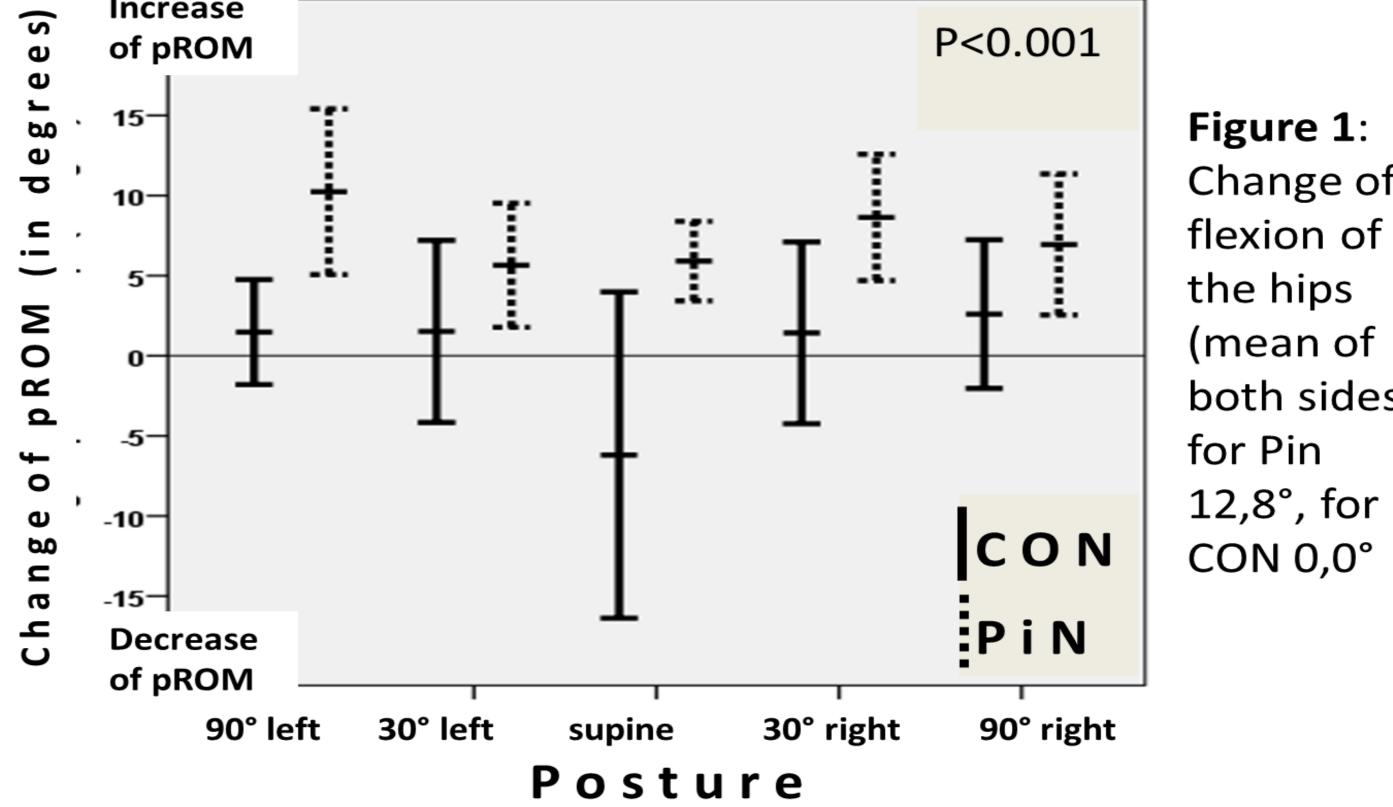
Background: Positioning severely impaired patients with stroke and other acquired brain lesions is used as a matter of course, but there is little evidence regarding the effectiveness of positioning. This study compares the effects of conventional positioning (CON) with Positioning in Neutral (PiN), which is a fairly new positioning concept.(Table 1)

Aims: To show whether PiN has more effect on the passive range of motion (pROM) of hips and shoulders and on comfort than CON.

Methods: In this prospective, multicenter, assessor blinded, randomized, controlled trial, **Conventional Positioning Positioning in Neutral** Positioning material is we enrolled 218 non-ambulatory patients placed under defined body body parts to each other, (stroke: 141, brain hypoxia: 28, head trauma: parts (e.g. back, arm) stretch and shortening of 20, other lesions of the central nervous • The effect on the alignment muscles is \rightarrow joints in system: 29). They were randomly assigned to is ignored neutral position as far as Body adapts to the surface possible PiN (n = 105) or CON (n = 113) and to 5 • Alignment of the body parts Support against gravity positions (90° side lying left, 30° partial side Cavities are avoided secondary lying left, supine, 30° side lying right, 90° side Unsupported cavities may Paretic body parts are lying right). Patients remained in the allocated firmly supported by occur pROMs were position for two hours. sufficient duvets and Cautious use of positioning material pillows measured with a goniometer, comfort on a Increase three-point scale. Primary outcome measure s) P<0.001 of pROM was change of pROM of the hips, secondary 15-Figure 1: Change of σ outcome was pROM of the shoulders and 10-(in flexion of comfort. For primary analysis, an analysis of 5the hips p R O M (mean of 0covariance (ANCOVA) with change of pROM both sides); -5for Pin of the hips as dependent variable, type of of 12,8°, for -10positioning (PiN/CON) and type of posture as ы С CON CON 0,0° -15baseline independent variable PiN and Decrease of pROM measurement as covariate was used. The 90° left 90° right 30° left 30° right supine Posture pROM values are the mean of both sides. **Results:** Hip pROM improved by 12.8° in the PiN group as compared to the CON group (p<0.001, 95 % CI, 5.72° to 19.96°), whereas there were no changes in the CON group. The same was true for shoulder flexion (p<0.001,11.85° [95% CI, 4.50° to 19.19°];) and external rotation (p<0.001, 7.08° [95% CI, 2.70° to 11.47°]). PiN was perceived as substantially more

Table 1: Characteristics of the two positioning concepts

- Focus on the alignment of



comfortable than CON (p < 0.001).

Conclusion: Decreased pROM is associated with pain, limited function and delay of rehabilitation. For the first time we could show the advantage of one positioning approach over another. Only PiN showed therapeutic effects while being perceived as more comfortable. Effects of longer intervention time need to be evaluated in future.

Facilities Participating in the Study: Germany: Bad Neustadt/Saale: Neurologische Klinik, Bad Oeynhausen: Johanniter Ordenshäuser, Bonn: Rheinisch Kliniken, Bremen: Klinikum Bremen-Ost, Burgau: Therapiezentrum, Gelsenkirchen: KKEL-St. Josef Hospital, Gladbeck: KKEL- St. Barbara Hospital, Gummersbach: Kreiskrankenhaus, Hildesheim: St.-Bernward Krankenhaus, Jockgrimm: Lina-Sommer AWO-Seniorenhaus, Kipfenberg: Klinik Kipfenberg, Leipzig: St. Georg, Lingen: St. Bonifatius Hospital, Murnau: BG-Klinik, Neresheim: SRH-Krankenhaus, Recklinghausen: Prosperkrankenhaus, Saarbrücken: Klinikum, St. Wendel: Marienkrankenhaus, Telgte: Maria Frieden, Siegburg: St. Josef Hospital. Austria: Linz: SWH Karl Borromäus

Conflict of interest: Investigators were members of the LiN-ArGe e.V., a non-commercial association that spreads the PiN-approach

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German Clinical Trials Register (ID: DRKS00004163¹

Fig. 1: <u>www.lin-arge.de/LiN</u> lernen/die Positionen (3.9.2013)

Fig. 2: Klein-Tarolli, E, Textor G: Bewegtes "Lagern". Positions-Unterstützung nach Esther Klein-Tarolli. 2008 (leicht aktualisierte 4. Auflage), Verlag Ingrid Zimmermann, Dorsten