

The use of IVS3 in acute neurological hospital

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Presentation

- Occupational therapy (OT) at the UMCL, Neurological hospital
- Introduction of the IVS3 in clinical practice
- IVS3 in acute stroke
- Questions

Occupational therapy (in-patient, out-patient):

1) OT department



Hand laboratory



OT: Individual/group



ADL
Laboratory

2) Hospital wards

Introducing IVS3 in clinical practice



2005



2021



The transfer of learnt skills is enhanced with additional counselling and training about safe & efficient performance of meaningful daily activities.



Implementing IVS3 in clinical practice ...

- Acute stroke (short hospital stay), movement disorders, multiple sclerosis
- As an add-on to standard OT practice
- In-patient and out-patient

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- Duration of IVS3 session is individual
 - IVS3 movements are supporting patients' rehabilitation needs

IVS3: What & How we assess

Activity/Occupation

- Extended Barthel Index (Prosiegel et al., 1996)
- Canadian Occupational Performance Measure (COPM) (Law et al., 1991)
 - a semi-structured interview
 - patient's perception of performance and satisfaction with her/his performance of meaningful daily occupations/activities (range 1-10)

Writing – nonstandardised task

Impairment

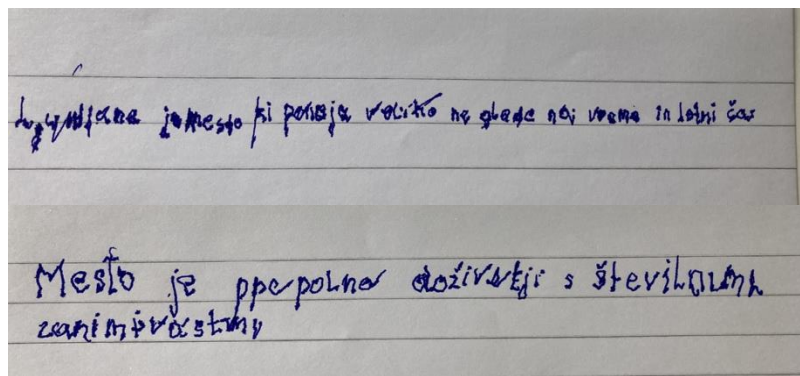
- Upper limb:
 - Box & Blocks (BB)- measures unilateral gross manual dexterity (Mathewietz, 1985)
 - Smart Nine Hole Peg Test (Spiclin et al., 2023)
 - Fugl Meyer – upper extremity (FMA-UE) (Fugl-Meyer, 1975)
- Trunk control (Trunk Control Test) (Franchignoni et al.; 1997)

Assessments

- Focal dystonia



- Alien hand syndrom



- Multiple sclerosis (The COPM)

	Importance	Performance 1	Satisfaction 1	Performance 2	Satisfaction 2
Writing	9	3	3	6	4
Phone	10	4	4	9	8
Eating	10	7	7	8	7
Brushing teeth	10	8	8	8	8
Average	9,75	5,5	5,5	7,7	6,7

- Acute stroke



IVS3 in acute stroke

Background

- upper limb (UL) impairment is common after stroke
- significantly affects activities of daily living (ADL)
- UL rehabilitation is a critical part of neurorehabilitation, beginning in the acute phase.
- evidence supports impairment-targeted therapy

Aim

- to investigate the feasibility and efficacy of IVS3 in acute stroke rehabilitation when used in addition to standard OT

Methods

(non-randomized, preference-based study)

Procedures

- 97 acute stroke patients admitted to the hospital
- referred to OT
- eligible patients who provided consent were assigned to either the IVS3 group or the control group
- all received daily neurorehabilitation, including OT
- participation in IVS sessions was initiated once pts. were able to maintain a seated position (wheelchair for at least 15 minutes)
- assessments were performed before OT, discharge and follow-up

Assessment tools

- the Fugl-Meyer Assessment for Upper Extremity (FMA-UE) for motor impairment
- Trunk Control Test (TCT)
- the Extended Barthel index (EBI) for disability

Results

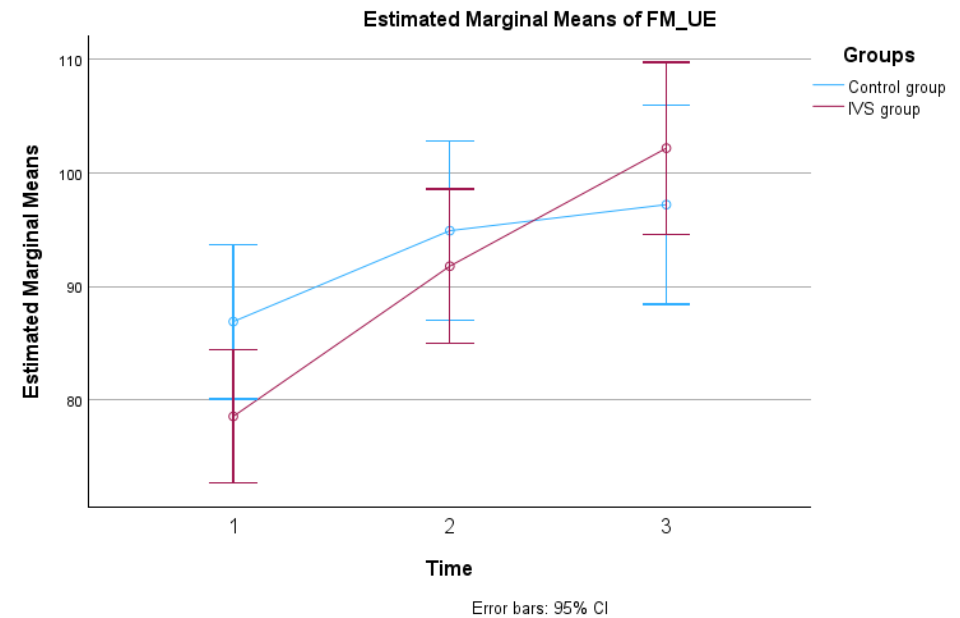
Patients (N)	Age	Sex F/M	Paresis/plegia (left/right side of body)	Number of strokes	OT beginning (day after admission)	OT sessions (days)	IVS3 (days)	IVS3 session (minutes)
IVS3 (55)	64,4±14,7	20F/ 35M	23 left / 32 right	1,1±0,4	3,9±3,3	11,3±9,1	7,8±3,9	14±6,1
Control (42)	71,5±10,7	17F/ 27M	24left / 18 right	1,2±0,5	5,1±5,5	10,8±6,1	Not applicable	Not applicable

Average follow – up for IVS3 was 145± 35 days

Average follow – up for control was 140± 37 days

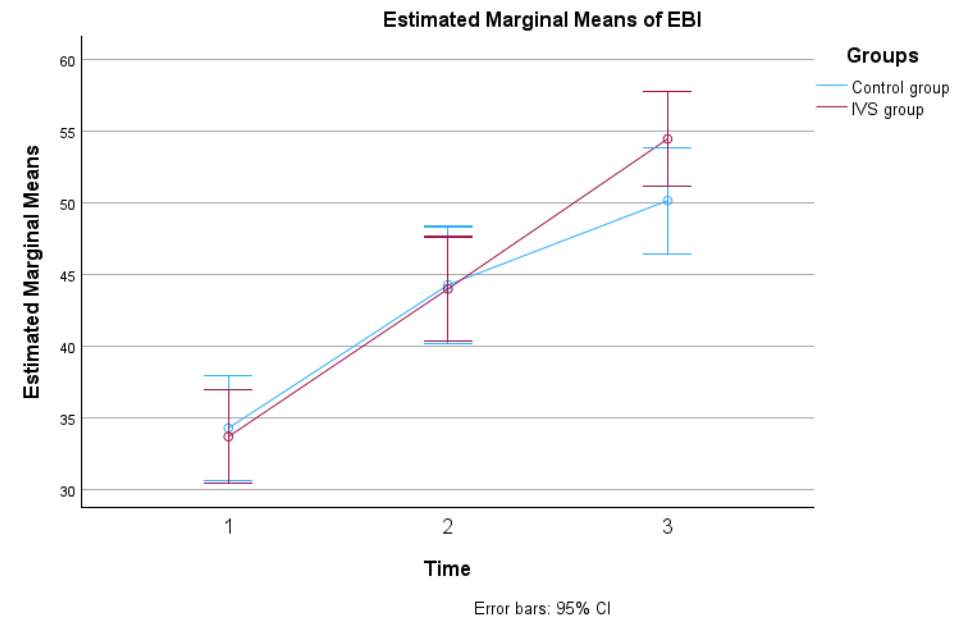
FMA-UE (range: 0-126)

Group	Beginning OT/IVS (mean±SD)	Discharge (mean±SD)	Follow-up (mean±SD)
IVS3-treatment	78,6±21,5	91,8±24,6	102,2±24,3
Control	86,9±22,5	94,9±24,4	97,2±26,7



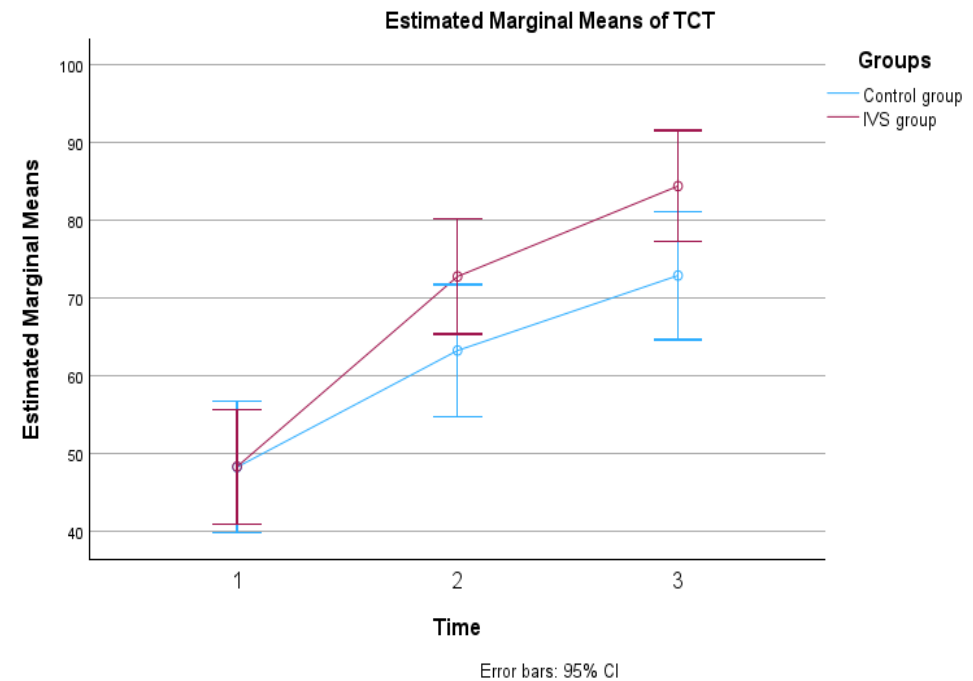
The Extended Barthel index (range: 0-64)

Group	Beginning OT/IVS (mean±SD)	Discharge (mean±SD)	Follow-up (mean±SD)
IVS3-treatment	33,6±11,1	44,0±12,9	54,5±12,2
Control	34,3±12,9	44,3±13,8	50,1±13,2



The Trunk Control Test (range: 0-100)

Group	Beginning OT/IVS (mean±SD)	Discharge (mean±SD)	Follow-up (mean±SD)
IVS3-treatment	48,2±23,7	72,6,2±23,0	84,4±20,1
Control	48,3±30,8	63,2±31,6	72,9±32,6



Summary of preliminary acute stroke results (Jansa et al., 2025)

- all patients demonstrated significant improvement over time in UE motor impairment, trunk control and ADL performance
- *patients in IVS3 group had a steeper recovery trajectory in motor function and the ADL performance, compared to the control group*

Conclusion

This preliminary results suggest that IVS3 is a feasible adjunct to standard OT and accelerate recovery in UE motor impairment, trunk control, and ADL performance in acute stroke patients

Additional clinical remarks:

- IVS3 was well accepted as a therapeutic device:
- „*I am much more aware of my R-hand now and use it more*“
- improved manual dexterity
- decrease pain
- along with ADL training and OT counselling has positive impact on self-perceived ADL performance

- Thank you.