PARO Robot Interaction Decreases Pain and Agitation Scores in Hospitalized Older Adults with ADRD and/or Delirium

Pamela Z. Cacchione, PhD, CRNP, FGSA,
Ellen Munsterman, MSN, RN
Lisa Walke, MD, MSHA, AGSF
Lisa Triantos, MSN, RN, CEN
Jodi Cheeks, MBA, BSN, RN
Michelle J Johnson, PhD ,
Marcia Baroni, MSN, RN NE-BC

INTRO

- Therapeutic robotic animals have been used in the community and long-term care settings, but rarely in the acute care setting. The ACE unit is the perfect setting to pilot test the use of the therapeutic robot.
- PARO (PersonAl Robot) is a relatively new therapeutic robot out of Japan currently being used in the community and long-term care settings to comfort PWD exhibiting agitation and restlessness (www.parorobots.com).

METHODS

- This is a randomized controlled pilot study of 104 older adults on an Acute Care for Elders Unit. Randomized to 1 hour of PAOR Robot Interaction 2 days in row compared to a Research Assistant for one hour two days in row.
- The CMAI_OT[1] and PAINAD[2] were completed at baseline and every 20 minutes X3 in both groups
- To determine if the PARO intervention group had less agitation and pain compared to the attention control group.
- Data was collected starting November 2019 but was disrupted by COVID.
- We analyzed the data using descriptive statistics and t-tests

FINANCIAL DISCLOSURE

Interaction with the PARO Robot improved agitation for first 20 minutes of as well as lowered pain over the first 60 minutes of the first interaction.

Day two interactions with the PARO Robot did not show significance differences on pain or agitation between the two groups

RESULTS:Demographics

Variable	Total (n=104)	Intervention (n=52)	Attention Control (n=52)	P value
Age Mean (STD)	82.3 (8.31)	81.8 (8.47)	82.8 (8.19)	0.519
Gender Male (%)	40 (38.5)	20 (38.5)	20 (38.5)	0.999
Female (%)	64 (61.5)	32 (61.5)	32 (61.5)	
Race Black /AA	81 (77.9)	38 (73.1)	43 (82.7)	0.237
White	23 (22.1)	14 (26.9)	9 (17.3)	
Ethnicity Non Hispanic	104 (100)	52 (100)	52 (100)	0.999
CMAI-OT Day 1 Mean (STD)				
Baseline	9.3 (6.35)	9.8 (6.69)	8.8 (6.02)	0.449
20 minutes	5.1 (4.78)	3.8 (3.59)	6.4 (5.47)	0.005**
40 minutes	4.0 (4.69)	3.6 (4.80)	4.5 (4.58)	0.317
60 minutes	3.7 (4.15)	3.0 (4.14)	4.4 (4.08)	0.092
PAIN AD Day 1 Mean (STD)				
Baseline	2.2 (2.15)	2.3 (2.04)	2.2 (2.28)	0.839
20 minutes	1.4 (1.91)	1.0 (1.51)	1.7 (2.20)	0.060
40 minutes	1.3 (2.01)	1.1 (1.84)	1.5 (2.17)	0.272
60 minutes	1.3 (2.00)	0.8 (1.60)	1.7 (2.26)	0.029*

DISCUSSION

- There was a significant improvement in agitation (CMAI_OT)within the first 20 minutes of introducing PARO to the Participants which was sustained but not statistically different from the attention control group at 40 and 50 minutes.
- There as a significant decrease in PAINA AD scores compared to the attention control group at 60 minutes with pain scores consistently declining for the intervention group compared to the attention control group
- There was no difference in agitation or pain between groups on Day 2.
- The PARO robot was as effective as a research assistant in this pilot study. The observed effects of increased verbalizations and the joy demonstrated by the participants were not systematically measured.
- Biophysiological measures such as galvanic skin sensors my capture the emotional response experienced by the participants.
- Clinician response to PARO should be captured in future studies.

REFERENCES

[1] Griffiths, A. W., Albertyn, C. P., Burnley, N. L., Creese, B., Walwyn, R., Holloway, I., Safarikova, J., & Surr, C. A. (2019). Validation of the Cohen-Mansfield Agitation Inventory Observational (CMA-O) Tool. Int Psychogeriatr, 32(1), 75-85.doi: 10.1017/S1041610219000279.

[2] Warden V., Hurley, A. C., &Volicer, L. (2003). Development and psychometric evaluation of the pain assessment in advanced dementia (PAINAD) scale. J Am Med Dir Assoc, 4(1), 5-15. https://doi.org/10.1097/01.JAM.0000043422.31640.F7

GSA 2023
Building Bridges ❯ Catalyzing Research ❯ Empowering All Ages
Tampa, FL • November 8-12

Penn Medicine
Penn Presbyterian Medical Center

Penn Nursing