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Fall Risk Assessment: Hendrich II Scale

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WHY: Falls among older adults, unlike other ages tend to occur from multifactorial etiology such as acute[1,2,3] and chronic[4] illness, medications[5] as a prodrome to other diseases[6] or as idiopathic phenomena. Because the rate of falling increases proportionally with increased number of pre-existing conditions and risk factors,[7] fall risk assessment is a useful guideline for practitioners. Determining the "why" the fall occurred however, involves critical analysis of potential underlying etiology (i.e. a comprehensive post-fall assessment) extending beyond fall risk assessment, but inclusive of it. Fall risk assessment and post-fall assessment are two interrelated, but distinct approaches to fall evaluation, both recommended by the American Geriatrics Society Guidelines[8] (2001) for fall prevention. As a barometer for further assessment directed at "why" the fall occurred, fall risk assessment tools (FRATs) are an integral component of any fall evaluation.

BEST PRACTICE APPROACH: In the acute care setting, the best practice approach incorporates use of the Hendrich II Scale[9] for it is quick to administer and provides a determination of risk for falling based on mental status, emotional status, symptoms of dizziness, gender, and is inclusive of categories of known increased risk medications. It can serve as a screen for primary prevention of falls or following a fall, as an integral component of the assessment used for their secondary prevention.

TARGET POPULATION: The Hendrich II Fall Risk Model is intended to be used in the acute care and the skilled nursing environment to identify adults at risk for falls. This includes rehabilitation, emergency department, and the behavioral care areas. The tool is being validated for further application of the specific risk factors in pediatrics and obstetrical populations and it is being used successfully in the home setting as well.

VALIDITY AND RELIABILITY: The Hendrich II Fall Risk Model was validated in a large case control study in an acute care tertiary facility with skilled nursing and rehabilitation populations. The risk factors in the model had a statistically significant relationship with patient falls (Odds Ratio 10.12-1.00, .01 > p <.0001). The instrument is sensitive (74.9%) and specific (73.9%).[10] Inter-rater reliability was measured in 17 randomly selected patients and was found to be 100% agreement negating the need for further matching during the study period. Content validity was established through an exhaustive literature review, use of accepted nursing nomenclature and the extensive experience of the principal investigators in this area.

STRENGTHS AND LIMITATIONS: The major strengths of the Hendrich II Scale are its brevity, the inclusion of medications, and that the instrument focuses interventions on specific areas of risk rather than on a single, summed general risk score. Medication risk is included in the tool in two ways 1) categories of 'true' increased fall risk medications (benzodiazepines and antiepileptics) are built into the tool and 2) the risk model construction found the most common side effects of drug therapies (confusion, dizziness, altered elimination, gait and mobility disturbances) were contained within intrinsic fall risk factors. This model assures medication risk is measured while preventing the over targeting of fall risk or duplication in medication risk assessment. The tool can be inserted into existing documentation forms or a single document and it has been built into electronic health records with targeted interventions that prompt and alert the caregiver to modify and/ or reduce specific risk factors' presence.[9]

References

1. Ooi, W.L., Hossain, M., Lipsitz, L.A. (2000). The association between orthostatic hypotension and recurrent falls in nursing home residents. American Journal of Medicine 108(2): 106-11.
2. Davies, A.J., Steen, N., Kenny, R.A. (2001). Carotid sinus hypersensitivity is common in older patients presenting to an accident and emergency department with unexplained falls. Age and Ageing 30 (4): 273-4.
3. Heitterachi, E., Lord, S.R., Meyerkort, P., McCloskey, I., Fitzpatrick, R. (2002). Blood pressure changes on upright tilting predict falls in older people. Age and Ageing 31 (3): 181-6.
4. Stolze, H., Klebe, S., Zechlin, C., Baecker, C., Friege, L., Deuschl, G. (2004). Falls in frequent neurological diseases-prevalence, risk factors and etiology. Journal of Neurology 251(1): 79-84.
5. Leipzig, R.M., Cumming, R.G., Tinetti, M.E. (1999). Drugs and falls in older people: a systematic review and meta-analysis: Cardiac and analgesic drugs. JAGS 47 (1): 40-50.
6. Gray-Miceli, D., Waxman, H., Cavalieri, T., Lage, S. Prodromal falls among older nursing home residents. Applied Nursing Research 7:1, 18-27.
7. Tinetti, M.E., Williams, T.S., Mayewski, R. (1986). Fall risk index for elderly patients based on number of chronic disabilities. American Journal of Medicine 80 (3): 429-34.
8. American Geriatrics Society, et al (2001). Guidelines for the prevention of falls in older persons. JAGS 49: 664-672.
9. Hendrich, A., Nyhuuis, A., Kippenbrock, T., Soga, M.E. (1995). Hospital falls: development of a predictive model for clinical practice. Applied Nursing Research 8: 129-139.
10. Hendrich, A.L. Bender, P.S. & Nyhuis, A. (2003). Validation of the Hendrich II Fall Risk Model: A Large Concurrent CASE/Control Study of Hospitalized Patients. Applied Nursing Research 16 (1), 9-21.

***CASE EXAMPLE:** Fall Risk Assessment with prior falls history*

An 80 year-old woman with new onset confusion and urinary incontinence who has fallen repeatedly at home in the past 2 months is hospitalized for further observation and possible long-term care placement. On admission she is anxious and confused, and unable to move. Medications include Haldol 0.5 mg BID started 1 week prior to admission. Admission laboratory work shows a normal CBC and SMA-12. The urinalysis has 50 WBC per high power field and +2 Bacteria. The Hendrich risk score was 9. A comprehensive post-fall evaluation and review of the high risk parameters led to a presumptive diagnosis of the underlying cause of the fall: acute confusion due to urinary tract infection. Haldol was stopped and Bactrim DS BID was started. Two weeks later, the urinary incontinence and confusion lessened and the falling stopped. She was discharged home to live with her daughter.

CASE DISCUSSION: This woman possesses several "red flag" areas of a dynamic nature, e.g., falls occurring on an acute, potentially reversible basis, acute urinary incontinence, urinary track infection, poly-pharmacy and delirium. Falling is related to these dynamic events and once treated the falling stopped. Note that the FRAT surfaced no past or static events associated with falls, such as non-reversible past medical problems like dementia or Parkinson's disease. But, use of the Hendrich scale captured significant risk factors including confusion (4 points), prescribed benzodiazepines (1 point) and inability to rise (4 points). These risks elicited from the Hendrich Scale coupled with a comprehensive post-fall assessment informed the nursing interventions

Hendrich II Fall Risk Model©

Risk Factor	*Risk Points*	
Confusion/Disorientation	4	☐
Depression	2	☐
Altered Elimination	1	☐
Dizziness/Vertigo	1	☐
Gender (Male)	1	☐
Any administeredprescribed antiepileptics (anticonvulsants): *(carbamazepine, divalproex sodium, ethotoin, ethosuximide, felbamate, fosphenytoin, gabapentin, lamotrigine, mephenytoin, methsuximide, phenobarbitol, phenytoin, primidone, topiramate, trimethadione, valproic acid)*	2	☐
Any administeredprescribed benzodiazepines: *(alprazolam, buspirone, chlordiazepoxide, clonazepam, clorazepate dipotassium, diazepam, fl urazepam, halazepam, lorazepam, midazolam, oxazepam, temazepam, triazolam)*	1	☐
Get-up-and-go* Test: "Rising from Chair" (select one) **If unable to assess (unconscious, drug-induced coma, traction, extreme debiltationdebilitation/atrophy), monitor for change in activity level and use all other risk factor scores.*		
Able to rise in single movement	0	☐
Pushes up, successful in one attempt	1	☐
Multiple attempts but successful	3	☐
Unable to rise without assistance	4	☐

TOTAL (5 or greater = High Risk)