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Burden of Chronic Diseases in Older Adults with Co-existing Conditions

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Introduction

Over growing population of geriatrics worldwide making 93% of adults aged 65 or older with common chronic diseases prevalence causing public health concerns [1]. With age increasing health-related comorbidities contribute the risk of adverse reactions for multiple medications. Gender and family genetics make older adults more vulnerable to avoid becoming a chronic disease patient. Multimorbidity is often coexist with complex care management to prevent dangerous interactions. The most prevalent condition that affecting roughly 61-67% older adults is hypertension followed by arthritis, high cholesterol, heart disease, and diabetes. The World Health Organization had estimated 1.4 billion adults worldwide had hypertension in 2024 [2]. Then type 2 diabetes impacts significant portion of the older adults leading to further complications. Many adults over 65 years age suffer simultaneously from multiple chronic conditions. This elderly population is at more risk of polypharmacy with significant consequences of adverse effects [3].

The higher prevalence of geriatric syndromes is a primary driver of higher medication cost with increased morbidity, disability, and mortality [4]. Inappropriately polypharmacy associated with significant consequences in prefrail and frail persons [5]. Pharmaceutical wastage with unfavorable outcomes of significant disease worsening and higher healthcare costs become more challenging than ever before. Drug adherence is a common problem is elderly people with chronic diseases [6]. This is heavily influenced by a variety of purposeful and unintentional non-adherence circumstances. Comorbidities with non- compliance patients' behavior with low patient knowledge increase disease worsening and higher death rates [7-8]. Adverse drug effects due to medication noncompliance are unfavorable for higher healthcare costs due to hospitalizations [9].

Cognitive impairment, Alzheimer's dementia in aging population interfering clinical consequences of polypharmacy increased healthcare use and caregiver burden [10]. Drug-drug interactions contribute anticholinergic risks in chronic conditions like diabetes, arthritis, and heart diseases. Older adults are disproportionately having chronic diseases and having dementia make the situation worse for these patients. Physical frailty with cognitive impairment is closely related as anticholinergic drugs significantly decline memory and psychomotor speed with cognitive flexibility [11]. Low socio-economic status and lower-level education are at higher risk of unexpected drug interactions [12]. The cumulative exposure over time from multiple chronic diseases drugs cause homeostasis in the body affect mental and physical decline. In the body age-related physiological changes impaired cognitive and physical capability with mental frailty is associated with increased mortality. Multiple medical settings by multiple providers for multiple comorbidities are high risk factors for polypharmacy [13-15].

Identifying and treating underlying cause for comorbid conditions with community support services. Educating caregivers and appropriate referral to behavioral health specialists can help these older adults for their chronic comorbidities. Cognitive screening for early signs and symptoms in age 65 and above, by primary care providers should be recommended as preventative task. Mini-Mental score evaluation and word list recall test are simple methods can be adopted in early evaluation [16]. Any change in cognition should raise concern for the health care provider if they have clear understanding of prescribed medications and its indications. Age related screening for vision and hearing impairment should be done for evaluating functional abilities like dressing, walking, managing money and taking daily medications. Nutritional history can be evaluated by usual food intake pattern with appropriate laboratory testing can describe the mineral elements deficiencies [17].

Medication appropriateness index for appropriate dose directions and drug-drug interactions can be useful for the vulnerable older adults with multiple comorbidities [18]. A clear understanding of polypharmacy is essential in managing this complex situation. The relationship between polypharmacy and mild cognitive impairment diagnosis has become challenge and requires thorough evaluation. Identifying the appropriate drug with risk factors should be strongly considered. Underlying frailty poses multi-level challenges like falls resulting in head injury without behavioral changes, and dementia. Geriatricians and

pharmacists in doubtful situation about older adults' medications and drug interactions should always consult by primary care physicians as this requires a team approach. Long-term adverse events effects of medications thoroughly discussed with a close follow-up for cognitive impairment and dementia [19].

Conclusion

Progressive muscle atrophies are characterized by profound disturbances in protein, carbohydrate-phosphorus, and enzymatic metabolism, including a decrease in contractile proteins and macroergic compounds in muscles [1-13]. Hyperaldolasemia and creatinuria hold the greatest diagnostic value, allowing differentiation between primary myopathies and neurogenic forms [5-9]. The experimental model of vitamin E deficiency in animals reproduces many biochemical changes but cannot be fully equated with the human disease [3-4]. The etiology and primary pathogenetic mechanisms remain unclear; endocrine and hereditary factors have not been convincingly confirmed [1-8]. Further research should focus on identifying the molecular mechanisms initiating the atrophic process and developing pathogenetically sound therapeutic approaches [2-16-19].

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