

Advanced Post graduated Course of the EAMA

Training session VII/3

SESSION 1

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## **Drug -disease interactions in heart failure**

Abstract

Cardiovascular disease is the greatest cause of morbidity and mortality in the elderly, representing a major health burden.

The prevalence of congestive heart failure ( CHF) has dramatically increased in the last few decades and CHF currently affects 10 per 1000 subjects over 65 years of age.

These figures explain why elderly subjects, in the Western world, represent the targeted population for many drugs affecting the cardiovascular system.

Currently, the evidence available for these drugs in the elderly is poor, being derived by small and underpowered studies which mainly ignore subjects aged more than 80yrs with impaired homeostatic capacity, increased individual heterogeneity, higher risk of adverse drug reactions and enhanced disability.

The appropriate use of cardiovascular drugs needs to acquire thorough knowledge on diverse clinical fields in order to overcome the unpredictable or neglected drug disease interactions which, nowadays, raise important concerns about the correct use of drugs in a growing aging population.

The age-related changes in drugs pharmacokinetics and pharmacodynamics lead to altered drug absorption and distribution, liver and kidney clearance and impaired drug physiological effect in the body.

The physiopathologic changes due to CHF lead to structural stiffening alterations, sodium and fluid retention, blunted autonomic and beta adrenoreceptor response with drug impaired bioavailability and pharmacological effect.

Further, many non cardiac drugs for CHF ( NSAID, Corticosteroids, Beta agonists, Intraconazole, Tricyclic antidepressant, Thiazolidinedione, Clozapine, Anticholinergics) and cardiac ones ( Beta blockers, Calcium channel blockers, loop diuretics) are able to precipitate acute exacerbations of CHF even if little literature is known, especially for the new cardiac drugs.

Not least the comorbidity and polypharmacy status introduce a non negligible focus on the frail elderly, amplifying the risk of adverse drug reactions.

Too many drugs are still used in elderly cardiovascular patients on the mere basis of studies of younger subjects, personal experience and common sense.

Rigorous and powered studies urge to provide standardized protocols on drug initiation and monitoring to maximize the therapeutic efficacy and safety

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