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Potential risks of being old aged caregiver

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ABSTRACT *Background: With the aging of the population, more caregivers are elderly, yet the potential risks of caregiving process is less addressed among old aged caregivers. Objectives: to assess potential risks of caregiving process among old aged caregivers compared to non-caregivers Methods: A Case-control study was conducted on 90 elderly subjects 60 caregiver cases (30 males and 30 females) and 30 non-caregiver controls (14 males and 16 females). All of whom were ≥ 60 years recruited from either inpatient wards or outpatient clinics of Ain Shams University Hospitals. Data regarding demographic characteristics, medical history and physical examination were taken. Geriatric Depression Scale, Mini-mental Status Examination, Zarit Caregiver Burden Scale, Spielberger anxiety scale, Pittsburgh Sleep Quality Index, and assessment of some of cardiovascular risks (fasting blood sugar, high sensitivity C reactive protein, serum lipids, and glycated hemoglobin) was performed. Results: Compared to controls; elderly caregivers had significantly higher anxiety and poorer sleep (p value < 0.001). There was no statistically significant difference between caregivers and controls regarding depression (p = 0.07) or cognitive impairment (p = 0.05). Caregivers were more prone to cardiovascular risk factors. They had higher levels of fasting blood sugar (P = 0.004), high sensitivity C-reactive protien (P = 0.001), triglycerides (P = 0.003), total cholesterol, low density lipoprotein cholesterol (P < 0.00), and glycated hemoglobin (P = 0.03). Zarit Caregiver Burden Scale showed no significant difference between males and females regarding caregiver burden (P = 0.2). Interpretation & Conclusion: caregiving process in elderly population is significantly associated with anxiety, sleep problems and cardiovascular risk factors.*

Introduction

Caregiver burden is the strain borne by a person who takes care of a disabled, chronically ill or elderly family member (Stucki and Mulvey, 2000). The caregiver's perception of the load, rather than the perception of others as family members or healthcare providers, determines its effect on his/her life (Kasuya, Polgar-Bailey and Takeuchi, 2000).

Caregivers need support for themselves as they often feel neglected, overwhelmed, ignored, and this augments their feeling of burden (Courts, Newton and McNeal, 2005).

Caregiving has physical, psychological, social and financial aspects (Kasuya et al. 2000). Caregivers have been found to have higher levels of psychological disorders as depression, anxiety, anger and hostility when compared with non-caregivers (Vitaliano, Scanlan, Zhang, Savage, Hirsch, et al. 2002). Caregiving moreover has bad effects on cardiovascular system (Rozanski, Blumenthal, Davidson, Saab, and Kubzansky 2005). As being elderly mandates a special type of medical, psychological, and social care; being both an elderly and a caregiver at the same time mandates more care. This issue is insufficiently addressed in research. Hence the aim of this study was to illustrate potential risks that elderly caregivers may be subjected to.

Material & Methods

Study Design:

A case-control study was conducted on 90 elderly subjects aged 60 years and older. They were recruited from the inpatient wards and outpatient clinics of Ain Shams University hospitals. The studied population was divided into 2 groups:

Case group: A sample of 60 caregivers (30 males and 30 females).

Control group: A sample of 30 non-caregivers (14 males and 16 females).

Exclusion criteria of the study participants were as follows:

Well-established diagnosis of coronary or cerebral vascular disease, diabetes mellitus, previous diagnosis of cancer or other comorbidities that could markedly affect the results of the assessment tools introduced in the study. These exclusion criteria were confirmed by full medical history, clinical examination and available investigations.

Methods:

Approval of the ethical committee of the Faculty of Medicine, Ain Shams University was obtained. Every participant was subjected to comprehensive geriatric assessment including; full medical history, physical examination, Geriatric Depression Scale (GDS-15), Mini- mental Status Examination (MMSE), Zarit Caregiver Burden Scale (ZCBS) (Zarit, Orr and Zarit, 1985), Spielberger Anxiety Scale (SAS) (Spielberger, Gorusch and Lushene, 1970) Pittsburgh Sleep Quality Index (PSQI) (Buysse, Reynolds, Monk, Berman and Kupfer, 1989) and biochemical tests of some of the common coronary risk factors including: Fasting Blood Sugar (FBS), high sensitivity C-reactive protein (hsCRP) (Gerwutz, Morley and Kushner, 1982), serum triglycerides(TG) (Dryer, 1970),

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total cholesterol (Richmond, 1973), Low density lipoprotein cholesterol (LDL) (Assmann, Jabs, Kohnert, Nolte and Schriewer, 1984), and glycated hemoglobin (HbA1C) (Rahbar, Blumenfeld and Ranney, 1969).

Analysis of data was performed by using the 12th version of Statistical Package for Social Science (SPSS). Description of all data in the form of mean (M) and standard deviation (SD) for all quantitative variables was done. Frequency and percentage was done for all qualitative variables. Comparison between quantitative variables was done using t-test to compare two groups and ANOVA (analysis of variance) to compare more than two groups. Comparison of qualitative variables was done using the Chi square and Fisher Exact Test. Significant level measured according to P value (probability), P≥ 0.05 is insignificant, P<0.05 is significant and p< 0.01 is highly significant.

Results:
A comparison between the socio-demographic characteristics of cases and controls are shown in (Table 1).

Table (I): Comparison of Socio-Demographic Characteristics between Cases and Controls

		Studied group		Chi square / or T test	P Value
		Controls (n=30)	Cases (n=60)		
Age	Mean±SD	65.2±6.4	61.5±2.7	3.87	<0.001
Gender	Male	14 (46.7%)	30 (50.0%)	0.09	0.5
	Female	16 (53.3%)	30 (50.0%)		
Occupation	Retired	22 (73.3%)	27 (45.0%)	6.47	0.01
	Working	8 (26.7%)	33 (55.0%)		
Marital Status	married	18 (60.0%)	53 (88.3%)	9.59	0.004
	Widow(er)	11 (36.7%)	6 (10.0%)		
	Divorced	1 (3.3%)	1 (1.7%)		
Education	Illiterate	15 (50.0%)	24 (40.0%)	3.27	0.5
	Can read & write	2 (6.7%)	4 (6.7%)		
	Primary	1 (3.3%)	8 (13.3%)		
	Secondary	4 (13.3%)	12 (20.0%)		
	High	8 (26.7%)	12 (20.0%)		
Financial difficulties	Yes	20 (66.7%)	40 (66.7%)	0	1.0
	No	10 (33.3%)	20 (33.3%)		

Caregivers were significantly younger (p < 0.001), married (p =0.004) and working (p = 0.01). Caregivers had significantly higher scores of SAS (p <0.001) and PSQI than non-caregivers (p <0.001). No statistically significant relation was found between depression as assessed by GDS (p = 0.7) (Table 2) or cognitive function as screened using MMSE (p= 0.5) and caregiving process.

able (II): Comparison between Caregivers and Non-Caregivers as regards Anxiety, Depression, Sleep Quality and Cognition.

Assessment Tools	Group	Mean± SD	T	P value
Spielberger Anxiety Scale (state)	Caregivers	41.9± 13.3	4.81	<0.001
	Non-caregivers	29± 8.7		
Spielberger Anxiety Scale (trait)	Caregivers	41.3± 13.8	5.63	<0.001
	Non-caregivers	26.2± 7.3		
Geriatric Depression Scale	Caregivers	2.9± 1.5	0.44	0.7
	Non-caregivers	2.8± 1		
Mini Mental State Examination	Caregivers	27.9± 2.5	0.62	0.5
	Non-caregivers	27.6± 2.3		

Caregivers had significantly higher values of fasting blood sugar (p =0.04), glycated hemoglobin (p =0.03), high- sensitivity C-reactive protein (p =0.001), triglycerides (p < 0.001), total cholesterol (p < 0.001) and LDL cholesterol (p < 0.001) compared to non-caregivers (Table 3). By applying ZCBS to cases, no statistically significant difference was found between males and females regarding caregiving burden (p =0.2).

Table (III) Comparison between Caregivers and Non-caregivers Regarding cardiovascular risk factors.

Cardiovascular Risk Factors	Group	N	Mean± SD	T	P value
Fasting blood sugar	Noncaregivers	30	103.4± 27.7	2.1	**0.04**
	Caregivers	60	124.6± 51.6		
hsCRP	Noncaregivers	30	2.4± 1.2	3.37	**0.001**
	Caregivers	60	4± 2.5		
Triglycerides	Noncaregivers	30	105.6± 13.6	3.04	**0.003**
	Caregivers	60	116.6± 17.1		
Total Cholesterol	Noncaregivers	30	195.4± 20.7	5.36	**0.000**
	Caregivers	60	223.1± 24.3		
LDL	Noncaregivers	30	138.3± 23.4	4.76	**0.000**
	Caregivers	60	165± 26		
Hb A1C	Noncaregivers	30	5.3± 0.3	2.15	**0.03**
	Caregivers	60	5.7± 0.9		

a) hsCRP = high sensitivity Creactive protein.
b) LDL = low density lipoprotein.
c) HbA 1 C = Hemoglobin A 1 C.

Discussion
Caregiver stress is a very important issue faced by geriatric health care providers and because of our rapidly aging society; the caregivers themselves became elderly people and in need for a specialized medical care. Most of

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the studies which addressed the issue of caregiver stress consider the younger population, so it was found of interest to explore the magnitude of this problem and the potential risks that are added to old aged caregivers. The current case control study compared elderly caregivers to non-caregivers, caregivers exhibited more anxiety than non-caregivers using the SAS. These results are consistent with many studies in which the anxiety level was significantly higher in caregivers compared to non-caregivers (Cochrane, Goering and Rogers, 1997)(Cooper, Balamurali and Livingston, 2007)(Grov, Dahl, Moum, and Fosså, 2005). Old aged caregivers also showed a poorer sleep quality indicated by the higher scores of PSQI. Several studies observed a higher prevalence of sleep related problems in caregivers when compared to non-caregivers (Vitaliano, Scanlan, Moe, Siegler, Prinz, et al., 1999)(McKibbin, Ancoli-Israel, Dimsdale, Archuleta and von Kanel, 2005)(Sato, Kanda, Anan and Watanuki, 2002)(Smith, Ellgring and Oertel, 1997) and this agree with our study results**.**

Despite the observed significant anxiety among caregivers, depression could not be detected as a significant psychological problem among them. This was in contrary to several studies as that of Pinquart and Sörensen (Pinquart M and Sörensen, 2003) which was a comprehensive review of the effect of caregiving on mental and physical health; they found a significantly higher proportion of depression and stress in the caregivers group. This could be explained by the nature of the Egyptian community and the prevalent pattern of extended families that appreciates and encourages caregiving process and braises every effort done for the sake of the elderly care recipient. This was obvious as most caregivers answered that they braise being caregivers for their relative yet the source of anxiety is the fear not offering the care that is satisfying for their relatives.

Moreover there was no statistical difference observed between caregivers and non-caregivers regarding cognitive function as assessed by MMSE. Many studies showed that caregivers have reduced cognitive functions compared with their non-caregiving peers (Caswell, Vitaliano, Croyle, Scanlan, Zhang and Daruwala, 2003)(De vugt, Jolles, van Osch, Stevens, Aalten, et al., 2004), on contrast; other studies found that caregivers had a significantly higher mean cognitive function score in comparison to non-caregivers (Herrera, Mendez-Luck, Crist, Smith, Warre, 2013). For an elderly to be a caregiver and a case manager like many of the Egyptian caregivers do an intact cognitive functions is a mandate, this may explain the absence of a difference between caregivers and non-caregivers regarding cognitive functions.

Finally caregivers in this study showed a higher risk of coronary heart disease as they had higher values of fasting FBS, glycated hemoglobin, high- sensitivity C-hsCRP, TG, cholesterol, and LDL cholesterol compared to non-caregivers.

A higher coronary heart disease (CHD) risk score was found in caregivers when compared with controls in several studies (von Känel, Mausbach, Patterson, Dimsdale, and Aschbacher, 2008)(Lee, Colditz, Berkman and Kawachi, 2003) which requires more health education and promotion among caregivers.

Conclusion: old aged Egyptian caregivers are a rising population who is at a greater risk of developing anxiety, sleep problems and CHD. They need to be offered a proper geriatric care for early detection of psychological and medical support.

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