J Forensic Sci, Jan. 2004, Vol. 49, No. 1
Paper ID JFS2003161_491
Available online at: www.astm.org

Lisa B. E. Shields,[1] *M.D.; Donna M. Hunsaker,*[1] *M.D.; and John C. Hunsaker III,*[2] *M.D., J.D.*

Abuse and Neglect: A Ten-Year Review of Mortality and Morbidity in our Elders in a Large Metropolitan Area*

ABSTRACT: Elder abuse and neglect refers to an act or omission resulting in harm, including death, or threatened harm to the health or welfare of an elderly person. Between one and two million elderly Americans experience some form of mistreatment annually. A ten-year (1992–2001) retrospective case review of morbidity and mortality among elders (age $\geq$ 60 years) was conducted at a State Medical Examiner's Office serving a major metropolitan region in Kentucky and Indiana. This study addresses cases of two categories: 1) medicolegal autopsies and 2) examinations of living subjects pursuant to a Clinical Forensic Medicine Program. The authors present 74 postmortem cases, in which 52 deaths were attributed to a homicidal act and 22 deaths were suspicious for neglect. Of the 22 living victims of elder abuse and neglect, 19 cases constituted physical and/or sexual assault and three individuals suffered from neglect. This study summarizes the characteristic features of elder abuse in both postmortem and living cases and underscores the necessity for multi-agency collaboration in order to reach an accurate conclusion in case work. Policies established by a well-established elder abuse task force promote the collaborative interaction necessary to formulate criteria for prevention of abuse and death within this vulnerable population.

KEYWORDS: forensic sciences, forensic pathology, elder abuse, elder neglect, clinical forensic medicine, autopsy

The American Medical Association's Council on Scientific Affairs in 1987 defined elder abuse and neglect as actions or the omission of actions that result in harm or threatened harm to the health or welfare of the elderly (1). Approximately 10% of adults 65 years and older experience elder abuse, of which 4% is regarded as moderate to severe (1,2). The Subcommittee on Health and Long-Term Care of the Select Committee on Aging in 1990 projected that by the year 2030, 52 million individuals will be older than 65 years of age, representing 17% of the American population (3).

Elder mistreatment may be divided into six discrete, but often overlapping, categories: physical, sexual, and psychological abuse, financial exploitation, neglect, and violation of rights (4). While elder neglect is the most commonly investigated form of elder abuse, it represents the least well-defined and most controversial form of maltreatment. Sexual abuse is the least frequently reported form of elder mistreatment and amounts to less than 1% of abuse cases (5). In a survey of emergency physicians reported in 1997, 580 of the responders were aware of at least one case of suspected elder abuse or neglect. The forms of elder mistreatment, from most to least common, were as follows: neglect (91%), physical abuse (69%), psychological abuse (68%), financial exploitation (49%), and sexual assault (14%) (6).

This study is a ten-year (1992–2001) retrospective review of morbidity and mortality among elders (defined as $\geq$ 60 years old) at a State Medical Examiner's Office, serving a major metropolitan area in Kentucky and Indiana, which conducts both medicolegal autopsies and examinations of living cases as part of an established Clinical Forensic Medicine Program. The record search yielded 74 postmortem cases, of which 52 deaths were attributed to homicide and 22 suspicious for neglect. The homicidal causes of death included gunshot, beating, stabbing, and asphyxia. The primary cause of death in the neglect cases was bronchopneumonia. Distinctive age-related factors among this elderly cohort were uniformly evaluated. The Clinical Forensic Medicine Program, established in 1990, consists of forensic pathologists and forensic nurses who are trained to conduct case-dependent screening as well as detailed background investigations and physical examinations of cases referred by Child Protective Services (CPS), Adult Protective Services (APS), or a police department. Of the 22 living elders who were examined between 1992 and 2001, 19 cases constituted physical and/or sexual assault, and three victims suffered from neglect.

We have selected a prototypically classic case of elder neglect to illustrate the features of abuse uncovered during the comprehensive investigation. Caretaker neglect was deemed to be a significant factor contributing to her death. The woman's son and private sitter, both of whom lived with the decedent, were charged with felonies and subsequently convicted.

Case History

A 75-year-old Caucasian woman presented to the local ED with hypothermia (body temperature of 85°F), hypotension with atrial flutter, and dehydration. She was noted to be cachectic and exhibited numerous cutaneous decubiti, abrasions, and contusions (Figs. 1*A*, 1*B*, and 1*C*). The woman's son stated that she had been walking and talking two days prior to the ED admission. Her death ensued after a five-day hospitalization. The woman had lived in her home

[1] Office of the Chief Medical Examiner, Louisville, Kentucky and the Department of Pathology and Laboratory Medicine, University of Louisville School of Medicine, Louisville, Kentucky.

[2] Office of the Associate Chief Medical Examiner, Frankfort, Kentucky and Department of Pathology and Laboratory Medicine, University of Kentucky College of Medicine, Lexington, Kentucky.

* Presented (Oral) at the 55th Annual Meeting of the American Academy of Forensic Sciences, February 17–22, 2003, Chicago, IL.

Received 10 May 2003; and in revised form 17 Aug. 2003; accepted 18 Aug. 2003; published 17 Dec. 2003.

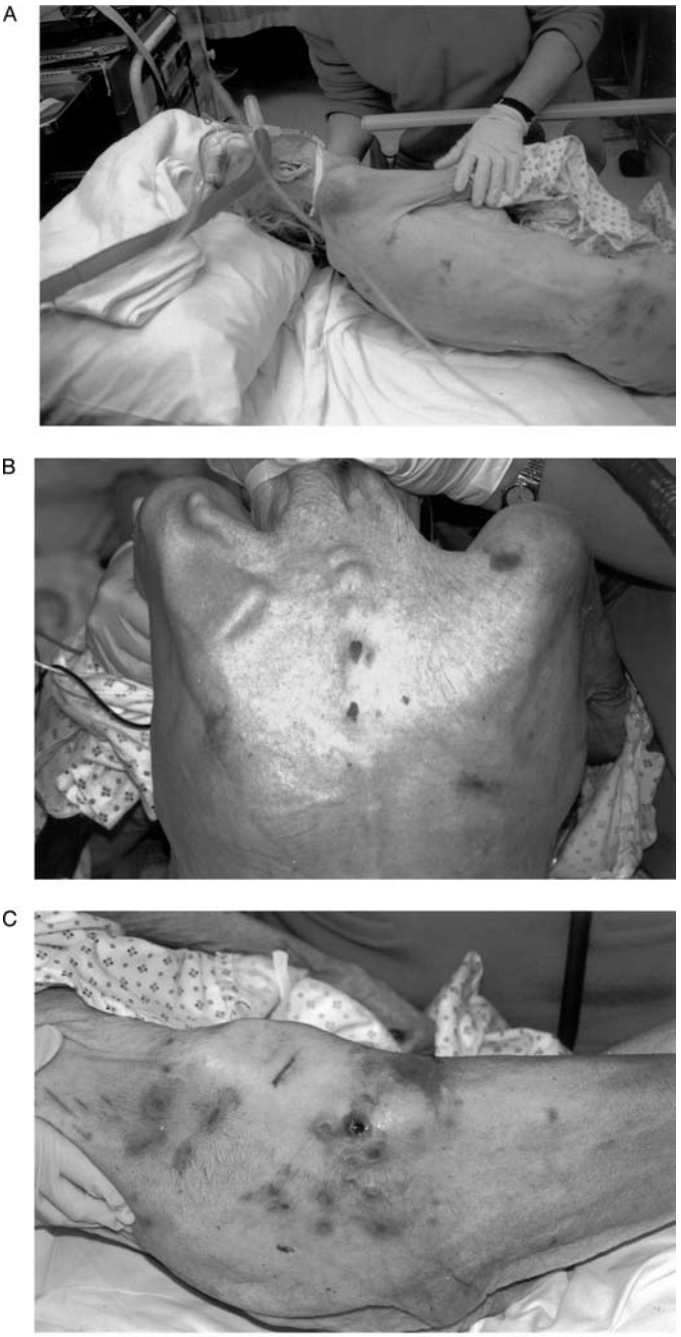

FIG. 1*A*—*In hospital examination of the elderly victim exhibiting multiple decubitus ulcers of the right shoulder and hip.*

FIG. 1*B*—*Closer view of decubiti of the upper back and bruises to the scapular regions.*

FIG. 1*C*—*Right hip decubiti of various stages and ages.*

FIG. 2*A*—*Fecal material of the bedding of the victim.*

FIG. 2*B*—*Fecal material and other debris in a corner of the victim's room.*

FIG. 3—*Designated containers of fruit cocktail allocated as her meals.*

with her son, a former public defender, and a private sitter, her son's live-in-girlfriend. Upon ambulance arrival at her home, the squad members reported poor living conditions, which featured feces and urine in the victim's bed, on her clothing, and on the floor of her bedroom and bathroom (Figs. 2*A* and 2*B*). Her bedroom had not been heated, despite the frigid temperatures of February. The kitchen was in order but dirty. Only minimal food substances were found (Fig. 3). A review of her medical records detailed a history of strokes leading to blindness and to frequent falls, from which she experienced fractures of both humeri and hips. She underwent internal fixation of the right arm for fracture of the supracondylar humerus two years prior to her death, and internal fixation of the left hip 15 years prior to death. Anorexia due to poor oral intake was clinically documented as early as 12 years prior to death. Two other previous hospitalizations for hypothermia and dehydration had occurred. Other pertinent findings in her history included a seizure disorder and undifferentiated schizophrenia.

Autopsy Findings

The decedent was a cachectic elderly Caucasian female with a height of 62.9 in. and a weight of 95 lb. (Body Mass Index [BMI] = 17 kg/m^2). Multiple cutaneous pressure ulcers (decubiti) were present on the upper back, and hips, fingers, and feet bilaterally. Blunt force craniocerebral trauma consisted of multifocal scalpular and cutaneous contusions of the right side, combined with subjacent subgaleal and right temporal muscle hemorrhages and bilateral chronic subdural membranes with focal acute hemorrhage. In other regions, there were healing rib fractures and blunt force cutaneous trauma of the extremities. Additional findings included bilateral bronchopneumonia, which on histopathological examination consisted of multifocal areas of organization, extensive pulmonary edema, and diffuse alveolar damage (adult respiratory distress syndrome). Senile dementia of the Alzheimer's type appearing grossly by cerebral atrophy and dilated lateral ventricles was confirmed microscopically (brain weight = 1010 g). Multiple recent and remote cerebral cortical infarcts, due to hypoperfusion of bilateral watershed areas, and cystic gliotic lesions were observed. The decedent also had ischemic heart disease, marked by calcific coronary artery disease, hypertensive cardiovascular disease with left ventricular hypertrophy, nephrosclerosis, chronic passive congestion of the liver and peripheral edema. Other findings of note were moderate myxoid degeneration of the mitral valve and cholelithiasis. Antemortem serum chemistries show the following admission levels: albumin, 2.2 g/dL (reference range: 3.0–5.5); total protein, 5.1 g/dL (reference range: 6.1–8.0); blood urea nitrogen (BUN) 30 m/dL (reference range: 6–21), and creatinine 0.7 mg/dL (reference range: 0.05–1.2). Postmortem blood toxicology recorded the following drugs prescribed to her while in the hospital: Phenytoin, 18.5 mg/L, Diazepam < 0.05 mg/L, Nordiazepam < 0.15 mg/L, and lidocaine. No drugs were detected in the urine. Investigators concluded that this elderly female died of bronchopneumonia secondary to senile dementia of Alzheimer's type and multiple cerebral infarctions, and, further, that caretaker neglect contributed significantly to her death.

Methods

Study Population

Deceased subjects: the population in this ten-year (1992–2001) retrospective study comprised individuals $\geq$ 60 years, whose manners of death included homicide and cases suspicious for neglect at the completion of background investigation and postmortem examination performed at the Office of the Chief Medical Examiner (OCME) in Louisville, KY. The neglect cases included those in which either bronchopneumonia, sepsis, or dehydration were the underlying causes of death, or various combinations of findings were diagnosed, such as decubitus ulcers, necrotizing fascitis/gangrene, and cachexia unrelated to carcinoma.

Living subjects: the population in this ten-year (1992–2001) retrospective study consisted of individuals $\geq$ 60 years who experienced either physical and/or sexual assaults, or had findings suspicious for neglect. The subjects were evaluated at the Clinical Forensic Medicine Program.

Results

Deceased Subjects

The OCME classified 1099 autopsy cases as homicide between 1992 and 2001 at the Office of the Chief Medical Examiner. Of all individuals $\geq$ 60 years who underwent an autopsy during this decade, medicolegal investigators determined that 52 individuals were victims of homicidal acts, and 22 subjects succumbed as a result of neglect. The age and sex of these individuals are displayed in Table 1. The various causes of death of the homicide victims included gunshot, beating, stabbing, and asphyxia, or combinations of these (Table 2). The perpetrators of these homicides were ascertained in several of these cases through either the coroner's report or through local newspaper stories (Table 2). The category designated as "undetermined" represents an unknown perpetrator or simply an undetermined assailant at the time of the victim's autopsy.

TABLE 1—*Postmortem elder homicide and neglect subjects.*

	Sex	Age
Homicide: 52 subjects	Males: 32 (61.5%)	Range: 60–90 years
	Females: 20 (38.5%)	Mean: 72.1 years
Neglect: 22 subjects	Males: 12 (54.5%)	Range: 66–89 years
	Females: 10 (45.5%)	Mean: 79.7 years
Total: 74 subjects	Males: 44 (59.9%)	Range: 60–90 years
	Females: 30 (40.5%)	Mean: 74.4 years

Twenty-two individuals demonstrated findings at postmortem examination regarded as suspicious for neglect. The causes of death and the decedent's residence at the time of death are tabulated in Table 3. Several other features of neglect were also apparent at postmortem examination (Table 4).

Two of the 52 (3.8%) homicide victims sustained a sexual battery, as confirmed at autopsy (Table 5). Both sexually battered victims were females, and both died as a result of beatings. The relationship of the perpetrator to the victim was undetermined in one case, while the assailant was an acquaintance of the victim in the other. Six of the 52 (11.5%) homicide victims had evidence of cancer at autopsy, with two victims diagnosed prior to death and four incidental findings (Table 5). Three homicide subjects (5.8%) had been diagnosed with Alzheimer's disease prior to death. Two of the 22 (9.1%) victims of neglect demonstrated incidental findings of cancer at autopsy, and seven neglect subjects (31.8%) had a clinical diagnosis of Alzheimer's disease prior to death (Table 5).

Living Subjects

The staff of the Clinical Forensic Medicine Program evaluated a total of 2250 individuals between 1992 and 2001. During this decade, these investigators concluded that 19 subjects $\geq$ 60 years were the victims of physical and/or sexual assault. Three subjects had experienced neglect. The age and sex of these individuals are displayed in Table 6. The perpetrators of the physical and sexual assaults are shown in Table 7. All eight of the sexual assault victims also sustained other forms of physical assault. Similar to the postmortem cases, the "undetermined" category signifies either an unknown perpetrator to the victim or an undetermined assailant at the time of the Clinical Forensic Medicine evaluation of the victim. Of the five physical assault victims residing at a nursing home at the time of the attack, four of the perpetrators were undetermined. A nursing home staff nurse who bit a resident was identified as the perpetrator in the one case. There were three other physical assault cases where the investigation determined the identity of the perpetrator. One involved a 70-year-old woman, who upon a physical assault and dousing with Drano by her 69-year-old husband, subsequently shot him fatally multiple times. The second victim was a 73-year-old man, who was stabbed with scissors and a knife

TABLE 2—*Characteristics of homicidal subjects with respect to cause of death and perpetrator.*

Cause of Death*	Sex	Spouse	Other Family	Acquaintance	Undetermined
Gunshot: 22 cases (42.3%)	M: 11 (50.0%) F: 11 (50.0%)	7 (31.8%)	4 (18.2%)	1 (4.5%)	10 (45.5%)
Beating: 19 cases (36.5%)	M: 14 (73.7%) F: 5 (26.3%)	0	1 (5.3%)	2 (10.5%)	16 (84.2%)
Stabbing: 10 cases (19.2%)	M: 8 (80.0%) F: 2 (20.0%)	0	0	2 (10.5%)	8 (80.0%)
Asphyxia: 5 cases (9.6%)	M: 2 (40.0%) F: 3 (60.0%)	1 (20.0%)	0	0	4 (80.0%)

* Two cases involved a combination of beating and asphyxia, one case combined gunshot and stabbing, and one case involved both a beating and stabbing.

TABLE 3—*Cause of death and residence of postmortem elder neglect subjects.*

	Cause of Death	Residence
Neglect: 22 subjects	Bronchopneumonia: 11 (50.0%) Sepsis: 5 (22.7%) Dehydration: 2 (9.1%) Ischemic/hypertensive heart disease: 2 (9.1%) Fall: 1 (4.5%) Undetermined: 1 (4.5%)	With family: 7 (31.8%) With non-family caretaker: 3 (13.6%) Alone with non-family caretaker visits: 2 (9.1%) Nursing home: 4 (18.2%) Unknown: 6 (27.3%)

TABLE 4—*Postmortem features of elder neglect subjects.*

Decubitus Ulcers	Necrotizing Fascitis/Gangrene	Body Mass Index	Injuries
21 (95.4%)	1 (4.5%)/2 (9.1%)	<17.5: anorexia 8 (36.4%) M:3, F:5 17.5–20.0: underweight 9 (40.9%) M:5, F:4 >20.0: 5 (22.7%) M:4, F:1	18 (81.8%)

TABLE 5—*Postmortem findings of elder homicide and neglect subjects.*

	Sexual Assault	Cancer	Clinical Alzheimer's§
Homicide 52 subjects	2 (3.8%)* M: 0, F: 2	6 (11.5%)† M: 5, F: 1	3 (5.8%) M: 1, F: 2
Neglect 22 subjects	0 (0%)	2 (9.1%)‡ M: 1, F: 1	7 (31.8%) M: 4, F: 3

* The cause of death in both sexual assault cases was beating.
† Includes renal cell carcinoma (2), well differentiated carcinoma of prostate (2), colon cancer (1), and small cell carcinoma of the lung and breast cancer (1).
‡ Includes renal cell carcinoma (1) and prostatic adenocarcinoma (1).
§ Subjects diagnosed with Alzheimer's disease prior to death.

TABLE 6—*Clinical living forensics physical and sexual assault and neglect subjects.*

	Sex	Age
Physical assault 19 subjects	Males: 6 (31.6%) Females: 13 (68.4%)	Range: 67–102 years Mean: 80.7 years
Sexual assault 8 subjects	Males: 0 (0%) Females: 8 (100%)	Range: 69–90 years Mean: 78.1 years
Neglect 3 subjects	Males: 1 (33.3%) Females: 2 (66.7%)	Range: 63–84 years Mean: 70.3 years
Total 22 subjects	Males: 7 (32.0%) Females: 15 (68.0%)	Range: 63–102 years Mean: 79.2 years

by his son. The third case was that of an 83-year-old man hit by his grandson's fists during a robbery attempt. Both sexual assaults occurred at a nursing home by undetermined perpetrators. The perpetrators were identified in the three neglect cases. In one case, a 63-year-old woman experienced medical neglect under the care of her husband. In two cases, non-family member caregivers were the perpetrators. The respective victims were a 64-year-old man with 3rd degree burns on his feet, and an 84-year-old woman who lived alone and exhibited evidence of gross neglect by her caregiver.

TABLE 7—*Clinical living forensics physical and sexual assault cases with respect to perpetrator.*

	Spouse	Other Family Member	Nursing Home	Undetermined
Physical assault 19 subjects	1 (5.2%)	2 (10.5%)	5 (26.3%)*	15 (78.9%)
Sexual assault 8 subjects	0 (0%)	0 (0%)	2 (25.0%)†	8 (100%)

* Five physical assault cases occurred at a nursing home where the victims resided. Four of the five cases involved undetermined perpetrators and, therefore, were placed in the undetermined category.
† Both sexual assault victims were residents of a nursing home when the assault occurred. Both perpetrators were undetermined.

Discussion

Whereas the child abuse movement has prompted extensive investigation and received publicity over the past three decades, attention to elder abuse and neglect has been relatively deficient in the medical and legal arenas. The notion of "granny-battering" was initially introduced as a letter to the editor in the British Medical Journal in 1975 containing multiple descriptions of elder abuse perpetrated by family members (7). Since that time, physicians have endeavored to define and raise awareness of the prevalence of elder abuse and neglect. Despite the increased awareness of elder mistreatment,

physicians report only 2% of all elderly abuse cases (5). Several risk factors have been proposed to define both the victim and perpetrator in cases of elder mistreatment. Risk factors associated with the caregiver include alcoholism, legal difficulties, psychiatric disease, and a mix of financial and emotional dependence on the elder (8). Caregivers also have been found to have increased depression and anxiety coupled with a history of violence or antisocial behavior (8,9). Further, the victims of elder mistreatment often suffer from cognitive impairment, live in close proximity to the abuser, and have minimal social interaction (9,10). Other established characteristics of abused elders include bowel and/or bladder incontinence, demanding attitudes towards their caregiver(s), and a history of past abuse (11).

Studies report a variety of findings as to the most frequent sex of the victims, but concur that most victims are > 75 years, with a mean age at detection of 84 years (11–14). In a nine-year observational cohort study by Lachs et al., 66.8% of the victims were female, which is in contrast to the study by Pillemer and Finkelhor revealing a greater percentage of abused elderly men compared to women (52% to 48%) (13,14).

All states currently have laws concerning elder abuse reporting. Of these, only 42 states require mandatory reporting. The Kentucky statute, KRS 209, defines "abuse or neglect" as "the infliction of physical pain, injury, or mental injury, or the deprivation of services by a caretaker which are necessary to maintain the health and welfare of an adult" (15). Furthermore, "exploitation" is defined as "the improper use of an adult or adult's resources by a caretaker or other person for the profit or advantage of the caretaker or other person." Under this law, an oral or written report should be issued immediately "upon knowledge of the occurrence of suspected abuse, neglect, or exploitation of an adult." After reporting suspected elder abuse and neglect, the physician may request the assistance of the Adult Protective Services (APS), an organization trained to delve into the relationship between the elder and his/her caregiver (10).

This study provides a unique perspective on elder abuse and neglect with examinations of both postmortem and living cases at the same State Medical Examiner's Office. A higher percentage of males were victims of homicide and died due to neglect as compared with a greater number of women who were victims of physical and sexual assaults and neglect as determined by the Living Forensic Medicine Program. The mean age of 72.1 years of the homicide victims was significantly lower than that of 80.7 years of the physical assault survivors. Furthermore, the deceased neglect subjects were almost ten years older, on average, than the living victims of neglect, respectively, 79.7 years and 70.3 years.

A multi-agency collaboration consisting of the forensic pathologist, coroner, law enforcement, and Adult Protective Services is paramount in the investigation of elder abuse and neglect cases. A thorough scene investigation should be conducted paying particular attention to the elder's medications, nutritional items, and potential hazardous environmental conditions. An extensive review of medical records, including an inventory of medications should also be performed. A complete postmortem examination may shed light on suspicious cases of elder abuse and neglect. A meticulous inspection for possible injuries, coupled with evaluation of hydration and nutritional status, should be performed. As documented in our study, 36.4% of postmortem neglect cases were in the anorexic category [BMI < 17.5 kg/m^2], 40.9% were underweight [BMI 17.5–20.0 kg/m^2], and only 22.7% had a BMI of > 20.0 kg/m^2. Furthermore, 81.8% of postmortem neglect cases had physical injuries, including abrasions and contusions. The findings of decubitus ulcers should alert the forensic pathologist to potential neglect. Decubitus ulcers represent a significant source of morbidity and mortality in the elderly population (16). The prevalence is estimated to be approximately 17% in hospitalized patients and 45% in residents of long-term care facilities. A sixfold increase in mortality has been linked to decubitus ulcers which have failed to heal (17). As illustrated in this study, 95.4% of postmortem neglect cases revealed decubitus ulcers. While not every individual with a decubitus ulcer is a victim of neglect, a more thorough consideration of the case as a whole is warranted. Additionally, a detailed toxicologic study will corroborate whether there is compliance in taking prescribed medications and detect whether there is any inappropriate alcohol or drug consumption.

The overwhelming majority of studies on elder abuse and neglect stress the familial relationship between the abuser and the victim and a strong correlation between elder mistreatment and domestic violence (8,10,11,13,14). In approximately 90% of elder abuse and neglect cases where the perpetrator was known to the victim, the perpetrator was a family member, typically an adult child or spouse in two-thirds of the cases (18). A striking finding within the present study is the high percentage of "undetermined perpetrators" in both the postmortem homicide and neglect cases as well as the physical and/or sexual assault and neglect cases investigated by the Clinical Living Forensics Program. These initially termed "undetermined perpetrators" at the time of autopsy or Clinical Living Forensics evaluation may represent family members, acquaintances, and people who live or work in the vicinity of the victim. With the ongoing communication between agencies, assailant identification and clarification of the circumstances will increase the likelihood that the matter is referred to appropriate legal authority for potential litigation.

Conclusion

A multidisciplinary team approach is vital in the investigation and prevention of elder abuse and neglect. Police and other investigators should meticulously investigate scenes of presumptive physical and/or sexual abuse as well as neglect cases and be attuned to circumstantial "red flags." The forensic pathologist's role in documenting body habitus during autopsy is a critical facet of the investigation. As in death investigations, the clinical living forensics review of the victim's medical records proves invaluable. When elderly abuse is determined to be present, the investigation should focus on identifying the putative perpetrators and providing all investigatory findings and conclusions to officers of the criminal justice system for potential criminal prosecution. The caregivers of the elderly woman described in the Case History were both held criminally responsible for their actions. The victim's son was convicted of the Class C Felony of "wanton murder" and sentenced to ten years' imprisonment with probation. The private sitter pled guilty to wanton abuse/neglect with exploitation of an elderly adult and received five years imprisonment.

Acknowledgment

The authors thank Deborah I. Shields for editing and reviewing the manuscript of this article.

References

1. AMA Council on Scientific Affairs: elder abuse and neglect. JAMA 1987;257:966–71.
2. AMA white paper on elderly health: report of the Council on Scientific Affairs. Arch Intern Med 1990;150:2459–72.

3. All AC. A literature review: assessment and intervention in elder abuse. J Gerontol Nursing 1994;20:25–32.
4. Program Resources Department, American Association of Retired Persons (AARP), and Administration on Aging (AoA), US Department of Health and Human Services. A profile of Older Americans. Washington, DC: American Association of Retired Persons, 1993.
5. Dobrin A, Wiersema B, Loftin C. Statistical handbook on violence in America. Phoenix: Oryx Press, 1996: 152–4, 157, 160–1.
6. Jones JS, Veenstra TH, Seamon JP, Krohmer J. Elder mistreatment: National survey of emergency physicians. Ann Emerg Med 1997;30: 473–9.
[PubMed] 7. Burston GR. Granny-battering. BMJ 1975;3:592.
8. Kleinschmidt K. Elder abuse: a review. Ann Emerg Med 1997;30:
[PubMed] 463–72.
[PubMed] 9. Lett JE. Abuse of the elderly. J Fla Med Assoc 1995;82:675–8.
10. Lachs MS, Pillemer K. Abuse and neglect of elderly persons. N Engl J
[PubMed] Med 1995;332:437–43.
11. Johnson TE, Boccia AD, Strayer MS. Elder abuse and neglect: detection, reporting, and intervention. Spec Care Dentist 2001;21:
[PubMed] 141–6.
12. Hazzard WR. Elder abuse: definitions and implications for medical edu-
[PubMed] cation. Acad Med 1995;70:979–81.
13. Lachs MS, Williams C, O'Brien S, Hurst L, Horwitz R. Risk factors for reported elder abuse and neglect: a nine-year observational cohort study. The Gerontologist 1997;37:469–74. [PubMed]
14. Pillemer K, Finkelhor D. The prevalence of elder abuse: a random sample survey. Gerontology 1988;28:51–7.
15. Adult Services Competency Based Curriculum. Adult Services Under KRS 209.
16. Emanuele JA, Katz T, Levien DH. Pressure sores: how to prevent and treat them. Postgrad Med 1992;91:113–20. [PubMed]
17. Allman RM, Laprade CA, Noel LB, Walker JM, Moorer CA, Dear MR, et al. Pressure sores among hospitalized patients. Ann Intern Med 1986;105:337–42. [PubMed]
18. National Center on Elder Abuse. The National Elder Abuse Incidence Study: final report. Administration on Aging. Washington, D.C. http://www.aoa.gov/abuse/report/default.htm, September 1998.

Additional information and reprint requests:
Donna M. Hunsaker, M.D.
Office of the Chief Medical Examiner
Urban Government Center
810 Barret Avenue
Louisville, KY 40204
E-mail: stinknlex@aol.com