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VIRUS ETIOLOGY OF AIRWAY ILLNESS IN ELDERLY ADULTS

To the Editor: Several new respiratory viruses have been discovered in humans since 2001: metapneumovirus (MPV), new coronavirus (CoV) strains NL63 and HKU1, bocavirus (BoV) 1, and rhinovirus (RV) species C.^{1,2}

Susceptibility to respiratory viral infections may be important especially in older age, but the viral etiology and clinical significance of respiratory illnesses in elderly adults is poorly documented.^{2–4} The aims of this study were to investigate the presence of viruses in elderly adults and to assess the association between viral infection and respiratory illness and between viral infection and chronic illness in individuals with an illness that requires hospitalization.

The study was conducted at Turku City Hospital between July 2007 and April 2009. Inclusion criteria included aged 65 and older and any disease necessitating hospitalization. Hospital episodes were divided in two groups depending on whether the individual had respiratory symptoms. The Ethics Committee of Turku University Hospital approved the study protocol.

Nasopharyngeal swab and serum samples were collected on hospital admission and after 2 weeks or at discharge from the hospital. Swab samples were analyzed for adenovirus, CoV NL63 and OC43, BoV, enteroviruses, MPV, RV, influenza A and B, PIV1–3, and Respiratory syncytial virus (RSV) A and B using polymerase chain reaction in the Department of Virology, Turku University Hospital. BoV infections were serologically confirmed in the Department of Virology, Helsinki University Hospital.

Seven hundred twenty-nine swab samples were collected from 663 individuals. The mean age of individuals with and without respiratory symptoms was 83 ± 7 . Asthma, chronic obstructive pulmonary disease (COPD), and rheumatic disease were more common in episodes with respiratory symptoms than in those without, and hypertension, stroke, dementia, and depression were less common (all $P < .05$).

Overall, 160 of 438 (37%) episodes with respiratory symptoms had more virus detections than 67 of 291 (23%) episodes without respiratory symptoms ($P < .001$, Table 1). Influenza ($P = .006$), CoV ($P = .005$), and MPV ($P = .02$) were detected more often when respiratory symptoms were present than when not. No acute HBoV1–4 infections occurred in the 396 episodes with respiratory symptoms studied using serology. Virus epidemics in elderly adults followed documented epidemics in the region. In episodes with respiratory symptoms two or more viruses were present in 22 (5%) samples, the most common viruses in coinfections being RV (59%) and influenza A virus (32%). The most common virus combination was RV with CoV, accounting for 25% of the coinfections. During episodes without respiratory symptoms, two or more viruses were detected in 14 (5%). The most common viruses were RSV and RV being present in 9 (64%) and 8 (57%) coinfections, respectively.

In the 729 episodes, age (range 65–100) was not associated with detection of respiratory viruses ($P = .49$), but the presence of a virus, especially influenza (odds ratio (OR) = 1.02, 95% confidence interval (CI) = 0.01–1.04)

Table 1. Virus Findings in Hospital Care Episodes

Virus	Respiratory Symptoms			
	Any, n = 438	With Dyspnea, n = 200	Without Dyspnea, n = 238	None, n = 291
Influenza virus	42 (10) ^a	20 (10) ^a	22 (9) ^a	12 (4)
A	34 (8) ^a	16 (8) ^a	18 (8)	11 (4)
B	10 (2)	5 (3)	5 (2)	2 (1)
Picornavirus	43 (10)	23 (12)	20 (8)	25 (9)
Rhinovirus	37 (8)	21 (11)	16 (7)	22 (8)
Enterovirus	8 (2)	3 (2)	5 (2)	3 (1)
Parainfluenza virus	33 (8)	13 (7)	20 (8)	16 (6)
Type 1	7 (2) ^a	3 (2)	4 (2) ^a	0 (0)
Type 2	4 (1)	0 (0)	4 (2)	3 (1)
Type 3	22 (5)	10 (5)	12 (5)	13 (4)
Coronavirus	29 (7) ^a	11 (6) ^a	18 (8) ^a	6 (2)
NL63	14 (3)	7 (4)	7 (3)	3 (1)
OC43	16 (4) ^a	5 (3)	11 (5) ^a	3 (1)
Respiratory syncytial virus	26 (6)	14 (7)	12 (5)	21 (7)
A	7 (2)	4 (2)	3 (1)	8 (3)
B	16 (4)	8 (4)	8 (3)	11 (4)
Metapneumovirus	8 (2) ^a	5 (3) ^a	3 (1)	0 (0)
Bocavirus 1	2/389 (1)	1/176 (1)	1/213 (0)	0/289 (0)
Adenovirus	2 (0)	2 (1)	0 (0)	2 (1)
Multiple viruses				
≥1	160 (37) ^a	76 (38) ^a	88 (37) ^a	67 (23)
≥2	22 (5)	12 (6)	10 (4)	14 (5)
≥3	7 (2)	5 (3)	2 (1)	2 (1)
≥4	1 (0)	1 (1)	0 (0)	0 (0)

Chi-squared test and Fischer exact test (when counts <5) were used.

^aDiffered ($P < .05$) from episodes with no respiratory symptoms.

and parainfluenza viruses in the upper airways (OR = 1.02, 95% CI = 1.00–1.03), was positively associated with the individual's weight.

A virus was detected in 23% of episodes without respiratory symptoms, which is consistent with findings in individuals of all ages.⁵ A striking difference between these elderly adults and children was the low number of BoV and the high number of RSV coinfections in subjects without respiratory symptoms.

The detection rate for the newly discovered BoV 1 was low, possibly because of short-term local replication or mere mucosal contamination of virus from grandchildren; there were no genuine acute BoV 1 infections. This is consistent with previous studies of adults;^{6,7} BoV 1 respiratory infection seems to be more a pediatric problem.⁸ No studies have investigated BoV infections in individuals with a mean age of 80 and older.

An association has been reported between body mass index and severe influenza-like illness,⁹ although only in people younger than 60, and the viruses were not identified. Obesity may impair vaccine-induced immunity and make obese individuals more susceptible to influenza.¹⁰ The current study shows that there is an association between respiratory virus detection and weight in elderly adults.

In conclusion, influenza virus and RV were the most detected viruses in episodes with respiratory symptoms, but overall, symptomatic and asymptomatic respiratory virus infections are relatively uncommon in elderly adults. Weight was associated with virus detection. The detection

rates for the newly discovered BoV 1–4 were low in elderly adults.

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WHAT DO OLDER ADULTS KNOW ABOUT THEIR CANCER DIAGNOSIS AND TREATMENT? THE ELCAPA-08 COHORT STUDY

To the Editor: Disclosure of cancer diagnosis and treatment options is critical for people with cancer and physicians. An information strategy customized to patient preferences may improve treatment adherence, coping

strategies, and quality of life at the terminal stage.¹ Older adults seem to wish to know their diagnosis² and perceive this information to be important, whereas physicians and families view full disclosure with some reluctance.^{3,4} The objective of the current study was to assess what older adults with cancer know about their diagnosis and treatment and to identify factors associated with the completeness of this information.

This was a cross-sectional analysis of the prospective Elderly Cancer Patient (ELCAPA) cohort⁵ survey of individuals aged 70 and older with as-yet untreated malignancy between 2007 and 2012. Individuals were referred to geriatric oncology clinics in teaching hospitals near Paris, France. Each participant had received information during a dedicated visit with the oncologist. The endpoint was the completeness of self-reported information about cancer diagnosis and treatment, assessed by a geriatrician. Complete information was defined as correct information about diagnosis and planned treatment, partial information as correct information about either of these points, and no information as no or incorrect information about both points. Demographic, tumor-related, and geriatric characteristics were recorded prospectively at baseline. Planned cancer treatments were categorized as curative, palliative, or exclusive supportive care.

There were 615 patients with a median age of 80; 52% were men, 38% were inpatients, 52% had metastases, and 42% had a Performance Status (PS) of 2 or greater. The four most common cancer types were colorectal (24%), breast (17%), urinary tract (14%), and prostate (11%). Median activity daily living (ADL) score was 4 (interquartile range (IQR) 5–6) and median Cumulative Illness Rating Scale for Geriatrics (CIRS-G) score was 11 (IQR 8–15). Twenty-eight percent of patients had two or more major comorbidities, and 19% had a Mini-Mental State Examination (MMSE) score of less than or equal to 23. Treatment intent was curative in 51%, palliative in 28%, and exclusive supportive care in 21%.

Overall, 548 (89.1%, 95% confidence interval (CI) = 86.4–91.5%) reported complete information, 31 (5.0%, 95% CI = 3.5–7.1%) partial information, and 36 (5.9%, 95% CI = 4.1–8.0%) no information. Proportions of patients reporting complete information were similar for all tumor sites (86–95%, $P = .50$) except for carcinoma of unknown primary (CUP) (50%, $P < .001$) and lung cancer (63.5%, $P < .001$). Table 1 shows the factors associated with partial and no or incorrect information in univariate ordinal logistic regression. Because strong correlations linked PS, metastatic status, and treatment intent (Cramer $V > 0.40$), only treatment intent was introduced into the multivariate model. The partial and no information categories had small numbers of patients, with no marked differences according to univariate analysis, and were collapsed into a single group. There was a significant interaction between age and treatment intent ($P = .03$). According to multivariate analysis, factors independently associated with not reporting complete information were CUP or lung cancer (adjusted odds ratio (aOR) = 7.70, 95% CI = 2.73–21.72), two or more major comorbidities (CIRS-G Grade 3 or 4) (aOR = 2.72, 95% CI = 1.26–5.87), MMSE score less