Candida parapsilosis, *Candida krusei* and *Candida tropicalis*, has also been observed. The recent emergence of *C.dubliniensis* as an opportunistic pathogen appears to coincide with this apparent epidemiological shift.[5] Although the majority of the *C.dubliniensis* isolates have been recovered from the oral cavities of HIV-infected patients, this fungal organism has also been isolated from specimens from different body sites.[6] In our study, our aim was to determine the prevalence of *C.dubliniensis* among patients with respiratory tract infections but without HIV-infection or AIDS, so, patients hospitalized in various clinics due to respiratory tract infections composed the study group and we examined the 60 germ tube positive isolates that were isolated as the infectious factor from the sputum samples of these patients.

There are few studies in the literature reporting the *C.dubliniensis* rate in the respiratory tract samples of HIV-negative patients. Fotedar et al[7] reported 7 *C.dubliniensis* in their study on 75 germ tube positive respiratory samples of sputum, bronchoalveolar aspirate, and nasopharyngeal aspirate by using the phenotypic methods. In a study of Kantarcıoglu et al[8] among an immunocompromised HIV-negative Turkish patient population, *C.dubliniensis* was isolated in the oral cavity and sputum of a patient with acute myeloid leukemia at 2 month intervals. Peltroche-Liacsahuanga et al[9] reported the 11.1% (6/54) rate of *C.dubliniensis* in the sputum samples of 54 patients with cystic fibrosis. In our study, we did not encounter *C.dubliniensis* among the 60 germ tube positive Candida species isolated from the sputum samples by using phenotypic and genotypic methods, however, more frequent recognition in the cystic fibrosis patient population and ability of producing fluconazole resistance features of the yeast necessitates extensive studies in particular patient populations and their samples in different geographic locates.

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From the Department of Microbiology and Clinical Microbiology, (Tekeli A, Dolapci, Koyuncu), and Department of Clinical Bacteriology and Infection Diseases, (Memikoglu, Yuksel, Tekeli E), Ankara University Medical School, Ankara, Turkey. Address correspondence and reprint requests to Ass. Prof. Alper Tekeli, Ankara Universitesi Tıp Fakultesi Mikrobiyoloji ve Klinik Mikrobiyoloji A.B.D 06100 Sıhhıye, Ankara, Turkey. Tel. +90 (312) 3103010 Ext. 259. Fax. +90 (312) 3106370. E-mail: tekeli@dialup.ankara.edu.tr

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Noninvasive ventilation in mild to moderate cases of respiratory failure due to acute exacerbation of chronic obstructive pulmonary disease

Amit Dhamija, *MD,* ***Puneet Tyagi,*** *MD,*
Rohit Caroli, *MBBS,* ***Mujeeb ur Rahman,*** *PhD,*
Vannan-Kandi Vijayan, *MD, PhD.*

Exacerbations of respiratory symptoms requiring medical intervention are important clinical events in chronic obstructive pulmonary disease (COPD), and are the major causes of morbidity and mortality. A severe exacerbation may lead to worsening of the clinical status, blood gas parameters and inspiratory muscle dysfunction which may lead to acute respiratory failure. A major clinical problem in acute on chronic hypercapnic respiratory failure is the inability to adequately oxygenate without worsening the hypercapnia, and therefore incurring the need to support ventilation. Over the last 15 years, noninvasive positive pressure ventilation has been used in this group of patients with variable success rates. Most studies compared

the efficacy of noninvasive ventilation in averting endotracheal intubation in patients with severe acute hypercapnic respiratory failure due to acute exacerbation of COPD (AECOPD) who were likely to need invasive mechanical ventilation from the time of inclusion into the study. The present study was conducted in patients with COPD exacerbation complicated by respiratory failure of a mild to moderate degree; none of the patients required endotracheal intubation at the time of inclusion. We compared standard therapy with standard therapy plus noninvasive ventilation as first line intervention in patients with acute or chronic respiratory failure due to COPD not requiring invasive mechanical ventilatory support and stable enough to be admitted to the general respiratory ward.

Patients who presented to the outpatients or emergency departments of the institute with signs and symptoms suggestive of acute exacerbation of COPD were evaluated. Patients were admitted to the study if they fulfilled the following criteria: pulmonary function tests suggesting COPD, chest radiograph showing no evidence of an acute infection or any other pulmonary disease and compatible with the diagnosis of COPD and presence of any of the following: pH more than 7.25, partial pressure of carbon dioxide in arterial blood ($PaCO_2$) more than 45 mm Hg on room air. Patients were not admitted to the study if they had any of the following: respiratory rate more than 35/min, pH less than 7.25, $PaCO_2$ more than 70 mm Hg, need for urgent endotracheal intubation, medically unstable (hypotensive shock, uncontrolled cardiac ischaemia or arrhythmia), unable to protect airways, excessive secretions, agitated or uncooperative, pulmonary tuberculosis (past or present), history of recent myocardial infarction or abdominal surgery and any other respiratory disorder. Patients were randomly assigned to receive standard therapy or standard therapy plus Bilevel Positive Airway Pressure ventilation (BiPAP) using the random number table.

Standard therapy included controlled oxygen with fixed percentage masks (or nasal cannulae if masks could not be tolerated) to maintain a target oxygen saturation of 85-92%, nebulized salbutamol (2.5 mg every 4 hours) and nebulized ipratropium bromide (250 µg every 6 hours), oral prednisolone 30-40 mg every day for a minimum of 5 days; antibiotics, aminophylline and diuretics were used at the discretion of attending medical staff. Noninvasive positive pressure ventilation (NIPPV) was delivered via portable ventilator (ResMed Sullivan VPAP II ST) via face mask or nasal mask for 6 hours in a day, in 2 sittings of 3 hours each, for 3 days. The standard therapy as discussed above was also given to patients in addition to NIPPV. Patients in both the groups were admitted to the hospital for a minimum period of 3 days.

Each patient was evaluated for level of cooperation, mental status, pulse rate, respiratory rate, blood pressure, arterial blood gases breathing room air and shortness of breath using Borg scale at the time of inclusion into the study. Follow up

Table 1 - Physiological measurements at different time points in the study

Parameters	Baseline	1 hr.	3/4 hrs.	6 hrs.	12 hrs.	24 hrs	48 hrs.	72 hrs.	F ratio
PR (per min)									
ST	98.46 ± 11.26	99.85 ± 11.85	99.31 ± 14.07	94.77 ± 11.03	93.38 ± 11.24	92.30 ± 1.94	94.31 ± 11.86	92.00 ± 9.02	2.08
BiPAP	106.92 ± 12.40	103.54 ± 11.40	100.62 ± 10.21	99.69 ± 10.73	97.23 ± 6.81	100.15 ± 13.87	92.46 ± 11.14*	91.08 ± 11.91*	5.186‡
RR (per min)									
ST	28.85 ± 4.32	28.15 ± 4.65	27.54 ± 5.72	25.77 ± 4.04	25.23 ± 4.66	23.69 ± 3.35*	24.00 ± 6.15*	21.69 ± 4.68*	6.564‡
BiPAP	30.61 ± 4.19	26.77 ± 4.13*	25.38 ± 4.43*	25.54 ± 4.01*	25.08 ± 4.94*	26.31 ± 6.16*	25.08 ± 5.87*	23.54 ± 4.18*	6.538‡
BS									
ST	5.67 ± 1.40	4.46 ± 1.05*	3.69 ± 0.95*	3.08 ± 0.86*	2.85 ± 0.80*	2.38 ± 0.65*	2.08 ± 0.95*	2.00 ± 1.08 *	43.59‡
BiPAP	6.46 ± 1.85	4.85 ± 1.46*	4.30 ± 1.25*	3.62 ± 1.56*	3.38 ± 1.45*	3.92 ± 1.75*	3.23 ± 1.69*	2.46 ± 1.05*	19.81‡
pH									
ST	7.38 ± 0.06	7.40 ± 0.05	7.40 ± 0.05	_	_	7.38 ± 0.06	7.40 ± 0.05	7.40 ± 0.05	1.526
BiPAP	7.37 ± 0.06	7.39 ± 0.07	7.38 ± 0.07			7.37 ± 0.06	7.39 ± 0.07	7.38 ± 0.07	3.617**
***PaO2*(mmHg)**									
ST	50.61 ± 9.75	55.69 ±11.88	53.38 ± 10.57	_	_	54.15 ± 13.33	58.46 ± 10.52	58.00 ± 15.76	2.578†
BiPAP	44.31 ± 6.43	46.23 ± 6.41	48.69 ± 8.54			45.08 ± 11.13	50.62 ± 8.53	56.08 ± 10.62*	8.48‡
***PaCO2*(mmHg)**									
ST	58.17 ± 5.58	57.25 ± 9.32	55.68 ± 9.76	-	_	55.84 ±11.09	55.53 ± 9.83	53.46 ± 7.70	1.409
BiPAP	62.59 ± 5.17	61.95 ± 7.82	61.44 ± 7.79			63.99 ±10.94	60.28 ± 7.21	58.75 ± 8.49	2.092

* - P<0.001 when compared to baseline values, † - P=0.035 by repeated measures ANOVA, ** - P=0.006 by repeated measures ANOVA, ‡ - P<0.0001 by repeated measures ANOVA, PR - pulse rate, RR - respiratory rate, BS - Borg scale, ST - standard therapy, hr - hour, BiPAP - Bilevel positive airway pressure

measurements of these parameters were carried out at one hour, 3 hours, 6 hours, 12 hours, 24 hours, 48 and 72 hours after admission to the study. Arterial blood gas analysis with the patients breathing room air was repeated at one hour, 4 hours, 24 hours, 48 hours and 72 hours after inclusion. After enrollment and randomization, patients were taken out of the study and intubation was performed if any of the following was present: respiratory arrest, respiratory pauses with loss of consciousness or gasping for air, psychomotor agitation making nursing care impossible and requiring sedation, heart rate below 50/min with loss of alertness and hemodynamic instability defined as systolic blood pressure of less than 70 mm Hg. The analysis of the effects of treatment in both the groups on the variables measured sequentially throughout hospitalization was made using repeated measures analysis of variance (ANOVA) followed by a post hoc contrast analysis, namely, multiple comparison test (Bonferroni test). Differences in the mortality and intubation rates between the 2 groups were compared using Fisher's exact test. A *p*-value lower than 0.05 was considered significant. The statistical analyses were carried out by using the Statistical Package for Social Sciences.

Twenty-nine patients were included in the study; 14 patients were randomly allocated to the BiPAP group and 15 to the standard therapy (ST) group. Three patients met the exit criteria of the study. One patient in the BiPAP group was not able to tolerate the mask after a few hours; one patient in the ST group died 2 days after inclusion into the study and one patient in the ST group required invasive mechanical ventilation 6 hours after inclusion.

At the time of admission, mean pH of patients in the ST group was 7.38 ± 0.06 and in the BiPAP group it was 7.37 ± 0.06 ($p>0.05$). Twelve patients in the ST group and 9 patients in BiPAP group had a pH more than 7.35 at the time of admission ($p>0.05$). Patients in the BiPAP group had a mean PaO_2 of 44.31 ± 6.43 mm Hg at the time of admission against 50.61 ± 9.75 mm Hg in the ST group ($p>0.05$). The mean $PaCO_2$ at admission of patients in the BiPAP group was 62.59 ± 5.17 mm Hg and that in the ST group was 58.17 ± 5.58 mm Hg ($p=0.05$). None of the patients in BiPAP group required invasive mechanical ventilation while one patient in ST group (pH at admission: 7.35) was given invasive mechanical ventilation 6 hours after inclusion into the study for deteriorating orientation levels and respiratory pauses.

Patients' heart rate improved in the BiPAP group, and a significant difference ($p<0.0001$) was noted 48 hours after initiation of therapy, while the difference in ST group was not significant when heart rate at various time points after admission was compared. It took 24 hours in the ST group to have a significant drop in respiratory rate, whereas in the BiPAP group, improvement was seen within one hour and persisted until the end of the study ($p<0.0001$ for both the groups). Patients in both the groups reported a significant improvement in breathlessness as assessed by Borg scale within one hour of therapy. There was a significant improvement in pH in the BiPAP group ($p=0.006$) after 72 hours of therapy. The pH increased from 7.37 ± 0.06 at the time of admission to 7.41 ± 0.04 at 72 hours. The improvement in pH in the ST group was not significant ($p=0.2$). The mean partial arterial oxygen tension (PaO_2) in the BiPAP group went up from 44.31 ± 6.43 mm Hg to 56.08 ± 10.62 mm Hg at the end of 72 hours ($p<0.0001$) The PaO_2 also improved in the ST group from 50.61 ± 9.75 mm Hg at admission to 58.00 ± 15.76 mm Hg after 72 hours ($p=0.035$). Although both the groups showed a trend towards improvement in partial pressure of carbon dioxide, the improvement was not significant in either of the groups (**Table 1**). The mean duration of stay in the hospital was 10.20 ± 5.64 days in the ST group while it was 9.77 ± 3.32 days in the BiPAP group. The difference between the 2 groups was not statistically significant ($p>0.05$)

Brochard et al[1] reported that there was a significant improvement in the encephalopathy score, respiratory rate, PaO_2, and pH during the first hour of treatment in the noninvasive ventilation group, whereas there was significant deterioration in the ST group. A dramatic improvement in pH and $PaCO_2$ within one hour was also observed by Bott.[2] Popenick et al[3] concluded that a 30 minute trial can predict success with BiPAP as shown by an improvement in pH, $PaCO_2$ and overall clinical appearance. Our results (changes in pH, $PaCO_2$ and respiratory rate) are similar to those observed by Plant et al,[4] wherein we also noticed a fall in respiratory rate and improvement in pH with a nonsignificant fall in $PaCO_2$.

None of the patients in our study was a candidate for invasive mechanical ventilation at the time of inclusion to the study. All the patients were able to maintain a satisfactory level of saturation of oxygen with supplemental oxygen delivered via nasal prongs or fixed percentage masks. These are the patients that would normally be treated with standard therapy. But, these patients are at a risk of developing dangerous levels of hypercapnia with supplemental oxygen therapy and may require ventilatory support.

Based on our findings, it is suggested that both standard therapy and standard therapy plus BiPAP are effective in treating patients with mild to moderate forms of acute on chronic respiratory failure due to acute exacerbation of COPD and avoiding endotracheal intubation. Bilevel Positive

Airway Pressure ventilation therapy can be easily administered in the general respiratory ward setting. Since 80% of our study subjects in ST group, and 64% in BiPAP group had a pH of more than 7.35, noninvasive ventilation can be a useful adjunct to standard therapy for early recovery from acute episodes in this group of patients as well.

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From the Departments of Respiratory Medicine and Biostatistics, Vallabhbhai Patel Chest Institute University of Delhi, Delhi, India. Address correspondence and reprint requests to: Dr. Vannan-Kandi Vijayan, Director, Vallabhbhai Patel Chest Institute University of Delhi, Delhi-110007, India. Tel. +91 (11) 27666180, Fax. +91 (11) 27667420. E- mail: vijayanvk@hotmail.com

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Stressors and coping strategies of medical students. *Gender differences*

Hanan E. Badr, *MPH, DrPH,*
Hesham M. Hamoda, *MD.*

Medical education is known to be a stressful process. Students are faced with demanding academic standards, deadlines, career aspirations, and the need to compete for residency positions.[1] The sources of stressors in medical students can be grouped into 3 general categories. Academic stressors include the condensed curriculum, exam conditions, peer competition, interactions with senior staff on ward rounds, and fear of incompetence. Social and personal stressors are caused by lack of free time for recreation, family, and intimate friends. Financial stressors derive from the need for continued financial dependence on family. Coping strategies and stress management have been studied. Some are considered "maladaptive" or harmful to health such as alcohol/drug abuse, smoking, binge eating, and interpersonal withdrawal. Whereas others are "adaptive" and conduct to better physical and psychosocial health, for example, exercising, seeking external social support, relaxing, or organizing work time better.[2] Gender differences in anxiety levels is well known. There is a consistent finding that female medical students score higher on "general anxiety", "test anxiety" and "neuroticism" scales than their male counterparts. Multiplicity of demands, the relative lack of women role models in academic medical centers and more difficulty in resolving issues of intimacy and career have been reported as contributing factors.[3] The purpose of the present study is to investigate stressors in male and female Kuwaiti medical students and compare differences in the coping strategies they employ when confronted by a variety of stressors.

This cross-sectional survey is part of a study among medical students in 3 countries in the Middle East [conducted and supervised by the World Health Organization (WHO-EMRO) and the International Federation of Medical Students' Associations (IFMSA)]. All the 443 students who attended the medical school on a permanent basis during the academic year 2002-2003 represented the target population. Those who returned completed questionnaires were 333, with a response rate of 75.2%. The target population anonymously completed a self-administered and structured questionnaire. Sociodemographic data were covered. Twelve stressors that usually face the medical students were involved; each assessed by a 3 point Likert scoring system. The reliability coefficient analysis revealed high internal consistency between the different stressors (α = 0.8). The total stressor scale was used to divide participants into 2 groups. A "low-stress" group with the total stressor scale $\leq$ the median, and a "high-stress" group with total stressor scale > than the median. Another set of questions referred to 7 different coping strategies reported by the students.

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 12. Chi square test (x^2), odds ratio, Student-t test, and ANOVA were used. Factor analysis using Principal Component Analysis (PCA) and the Varimax rotation method was performed to the 12 stressors. Reliability Coefficient was performed to estimate the internal consistency between the studied stressors. The level of significance was $p \leq 0.05$ and confidence interval (CI) = 95%.

The mean age and standard deviation of the students were 21.5 ± 1.95 and the median was 21. More than one half of the sample was females (58.2%). Approximately half of the students considered their background as religious (48.9%) or moderately religious (43.1%) with the majority being females (65% and 55.3%). Gender difference was statistically significant (x^2=11.801, p=0.008).