

Teaching of Pneumonia on a Cycle of Specialization “General Practice – Family Medicine”

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Abstract

Pneumonia remains an urgent medical and social problem. The urgency of this problem is not stressed by only the significant prevalence, but also by quite high rates of morbidity and mortality and significant economic losses due to this disease.

The purpose of work: is to improve the quality of the training for interns – on the specialty “General Practice – Family Medicine” by improving the teaching of the topic “Pneumonia” and practical classes.

Discussion: Postgraduate education includes training of medical interns – general practitioners to work independently on primary health care. Great importance in the education of interns – general practitioners is given to the development of practical skills.

Conclusion: Further improvement of practical training of interns – general practitioners on the specialty “Pneumonia”, perfection of practical training of a doctor – is a complex process that requires not only organizational measures, improvement and specification of standardized clinical protocols, textbooks, but also continuous improvement of academic, medical diagnostic, educational work, materials and technical support of study.

Keywords

pneumonia, treatment, practical skills

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Problem statement and analysis of the recent research

According to the modern definition, pneumonia is an acute infectious disease mainly of bacterial etiology that is characterized by focal lesions of lungs’ respiratory departments accompanied by intra-alveolar exudation.

Pneumonia remains a relevant medical and social problem. Its urgency is due not only to the significant prevalence but also enough high rates of morbidity and mortality and significant economic losses because of this disease. Among the causes of mortality pneumonia is in the 4th place after diseases of heart and blood vessels, malignant neoplasms, injuries and poisonings.

Mortality from community-acquired pneumonia is 5%. In patients who need hospitalization, this index rises to 21.9%; of nosocomial pneumonia – 20%; in elderly patients – 46%. According to WHO among children the community-acquired pneumonia is diagnosed annually worldwide in 155 million cases. Community-acquired pneumonia is diagnosed in about 20 infants per 1000, in 34-40 of 1000 preschool children, in school age (5-9 years) it is reduced to 20, and in adolescence (9-15 years), its frequency is reduced to 10 cases per 1000 of children [2]. Pneumonia is a common cause of death in children under five years old worldwide [2]. In Ukraine, community-acquired pneumonia in the structure of infant mortality ranks third after perinatal pathology and congenital

malformations.

Due to large incidence of pneumonia, general practitioners meet this pathology extremely often.

Objective: is to improve the quality of the training for doctors-interns – general practitioners by improving the teaching of the topic “Pneumonia” and practical lessons.

Discussion

Postgraduate education involves training of interns – general practitioners to work independently in primary health care. Specialist should be able to assess the specific situation, particularly critical, to make a diagnosis fast enough, to provide a full first aid and take organizational decisions. In order to ensure skilled medical care at any stage the standardization and unified approach are required not only in the diagnosis and treatment of respiratory diseases, but also in educational program of the training of general practitioner.

It is desirable that at the stage of self-training an intern has an access to current information, guidelines, tentative plan for working with literature, electronic sources. Therefore, the general need for interns is to study modern national and international guidelines for diagnosis and treatment of pneumonia, made by leading experts on the results of prospective randomized controlled studies which were conducted on the evidence-based medicine.

Traditionally, practical training consists of preparatory,

basic and final stages. The preparatory phase takes 20% of the time and requires consideration of organizational issues, learning objectives, control of the primary level of knowledge, skills and abilities. Individual theoretical survey, test control, solving of common tasks and situational problems take place.

The main document regulating action of doctor in Ukraine now is order of Ukraine Health Ministry #128 from 2007 [3]. At present, it should be reviewed. Use of the classification of pneumoniae that is listed in ICD-10 is problematic for family physicians. In practice, the etiologic diagnosis of pneumonia in 50-70% of patients is complicated because of insufficient informative and great length of traditional microbiologic studies. In 20-30% of patients there is no productive cough. Selection of intracellular pathogens using standard diagnostic techniques is impossible. Identification of the causative agent is possible only in 48-72 hours after receipt of the material. Patients commonly take antibiotics before medical help. Therefore, it is advisable to use a classification that takes into account the conditions of the disease, especially lung tissue infection and also the immune responsiveness of the patient. This allows with a high degree of probability to predict the possible causative agent.

The main stage of the lesson takes about 60% of the time. This time is given to master practical skills. Independent practical work with the patient contributes the formation of professional skills. Interns learn to evaluate properly not only the clinical symptoms, but also to perform physical examination, to evaluate objectively hemodynamics of the patient, to determine the degree of ventilation and respiratory failure, to provide the first aid. It is necessary to note that the greatest practical importance has the division of pneumonia into the community-acquired (CAP) and nosocomial [7]. Such division is not associated with the severity of the disease, and the only criterion of the division is the environment in which the pneumonia has developed. Under the CAP one should understand an acute disease that emerged in the community-acquired conditions (outside the hospital or after 4 weeks after the discharge from it, or it was diagnosed in the first 48 hours of hospitalization) and is accompanied by symptoms of lower respiratory tract infection (fever, cough, sputum, possibly purulent one, chest pain and shortness of breath) and radiographic features of new focal-infiltrative changes in the lungs in the absence of obvious diagnostic alternative. It is advisable to classify CAP as following: 1) CAP in patients without severe disorders of immunity; 2) CAP in patients with severe immune disorders: a) the acquired immunodeficiency syndrome (HIV/AIDS), b) other diseases/pathological conditions; 3) aspiration pneumonia. In addition, depending on the severity of the disease pneumonia should be distinguished as mild, moderate and severe. One has to assess the severity clinically. It remains important to divide patients into 4 clinical groups.

Intern masters curation and plan of examination and treatment of patient. He analyzes laboratory data. It should be noted that blood analyses data give no possibility to deter-

mine a potential causative agent of pneumonia. However, leukocytosis above $10 \cdot 10^9/l$ indicates a high probability of bacterial infection, and leukopenia below $3 \cdot 10^9/l$ or leukocytosis above $25 \cdot 10^9/l$ are unfavorable prognostic signs. Intern works with pulse oximeters, electrocardiographs, evaluates X-ray (two projections are required). The physician should determine the necessity of further additional examination of the patient, the feasibility of a CT scan of the chest cavity. The attention is focused on issues of differential diagnosis with acute and chronic respiratory disorders, including lung tuberculosis, cancer, occupational diseases. Diagnostic errors most often occur in the diagnosis of pneumonia in elderly and senile patients. The definition of poly-morbidity and evaluation of the role in the development of pneumonia agents such as viruses, mycoplasma, Chlamydia, Legionella, and pneumo-cysts and associations of pathogens is of great practical importance for persons over 60 years. In elderly patients pneumonia is often associated with background respiratory and non-respiratory comorbidities. Interns should determine the pathway of patients. The choice of place for treatment is the important question for the doctor after diagnosis of CAP, because it determines the amount of therapeutic and diagnostic procedures and treatment costs. According to the modern guidelines as for the adult patients with CAP, a significant proportion of them should be treated on in outpatient basis. In this regard, particular importance should be given to the definition of criteria or indications as for hospitalization based on a number of known clinical and laboratory scales [6]. Today, the most simple and accessible for routine use in the outpatient conditions there is a predictive scale CRB-65. It is based on a modified scale of the British Thoracic Society, which provides the evaluation of 4 parameters: age, disorders of consciousness, respiratory rate, systolic and diastolic blood pressure. Based on the probability of a lethal outcome, the patients are divided into 3 groups, each corresponds to a specific gravity of the disease and for which the predominant place for treatment is recommended. The minimum score on this scale is 0 points, maximum – 4 points. Thus, the scale CRB-65 helps to justify the choice of place for treatment. Scale PORT (according to the study of the Pneumonia Patient Outcomes Research Team) will help determine the risk of fatal outcome. Scale SMART-COP/SMRTCOP in patients with community-acquired pneumonia enables to assess the need for respiratory support and vasopressors.

Treatment algorithm should be built considering the probable causative agent, clinical group, the severity of patient, history data [4, 5]. In particular, one should be aware of alergen-anamnesis, antibiotics that were taken in the last 3 months [1]. Interns should note data of SOAR (Survey Of Antibiotic Resistance), study of antibiotic resistance in Ukraine. Antibacterial therapy is prescribed empirically without results of microbiological studies. So, physician should prescribe antibiotics with high activity for the most probable causative agent of pneumonia, with a convenient dosage regimen that will allow patients to maintain a high commitment to the chosen

treatment.

Also, interns conduct patient’s education; provide recommendations on non-medical treatment, breath exercises, rehabilitation, decide question of disability expertise and clinical examination. While working with patient in the clinic, interns learn to build partnership not only with the patient but also with his relatives. Specialists learn to consider comorbidities, social and living conditions in which the patient lives and against which the disease arises. The patient can’t be considered separately from his family and the environment.

Interaction with senior colleagues, low-grade and junior medical staff encourages respect for the principles of ethics, medical ethics, develops collegiality. During the lesson medical interns discuss the medical history of patients with CAP, learn to determine the leading syndromes, formulate clinical and syndromic diagnosis, and perform analysis of errors committed in the pre-hospital and hospital stages of medical care. There is the necessity to develop clinical thinking, ability to work with medical documentation, to debate and defend one’s point of view. Thus, the main stage of the lesson combines independent and collective work of interns. It is desirable for the lecturer to use modern techniques, such as method of “brainstorm”. This gives the possibility for every intern to express his point of view. Case-method teaches to make decisions as in the future the doctors will encounter quite complicated work with patients. Synanon-method will teach to prepare for conflict situations; it develops the ability to maintain emotional balance.

At the final stage of the lesson (20% of time) the lecturer should monitor and correct the level of practical and professional skills, summarize the lesson. It is important not only to control the level of knowledge of interns, but also influence the outlook of future professionals, to develop professional and moral qualities of future doctors. At the end of the lesson all interns receive their home-task.

Conclusions

Therefore, further improvement of practical training of interns in specialty “General practice-family medicine” on the questions “Pneumonia”, improvement of practical skills of the doctor – is a complex process that requires not only organizational measures, improvement and specification of standardized clinical protocols, textbooks, but also continuous improvement of academic, medical-diagnostic, educational work, material-technical support of the lesson.

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