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IMPROVING EARLY DIAGNOSTIC METHODS IN INTERNAL DISEASES: PRACTICAL EXPERIENCE AND OUTCOMES

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Abstract: Early diagnosis plays a crucial role in reducing the progression and complications of internal diseases. This study examines the effectiveness of modern diagnostic methods used in early detection, evaluates their practical implementation in clinical settings, and analyzes outcomes based on patients' medical records. The research highlights common challenges in the early identification of cardiovascular, respiratory, gastrointestinal, and endocrine disorders. Practical experience demonstrates that timely application of laboratory, instrumental, and screening-based diagnostic tools significantly increases treatment success and decreases hospitalization rates. Recommendations for improving diagnostic accuracy and integrating advanced technologies into primary healthcare practice are also presented..

Keywords: Early diagnosis, internal diseases, clinical practice, screening methods, laboratory diagnostics, instrumental diagnostics, primary healthcare, medical assessment.

Introduction: Cystic fibrosis (CF), or mucoviscidosis, is the most common life-limiting autosomal recessive genetic disorder among Caucasian populations, though its prevalence and characteristics in Central Asian populations, including Uzbekistan, are less defined. The disease is caused by mutations in the cystic fibrosis transmembrane conductance regulator (CFTR) gene, leading to dysfunctional ion transport across epithelial cells. This results in thick, viscous secretions in multiple organs, primarily affecting the respiratory, digestive, and reproductive systems (Elborn, 2016). Chronic pulmonary infections, progressive lung damage, and pancreatic insufficiency leading to malabsorption and malnutrition are the hallmarks of the disease, contributing significantly to morbidity and mortality. Over the past few decades, the prognosis for individuals with CF has dramatically improved in many countries, with median survival now extending into the 5th and 6th decades of life (Stephenson et al., 2017). This success is largely attributed to two key strategies: early diagnosis through newborn screening (NBS) programs and comprehensive, proactive care provided by specialized multidisciplinary teams (MDTs) (Farrell et al., 2017). Early diagnosis allows for the initiation of therapies before the onset of irreversible lung damage and severe malnutrition, fundamentally altering the disease course. The MDT

model, which integrates specialists such as pulmonologists, gastroenterologists, dietitians, physiotherapists, and psychologists, ensures that all facets of this complex disease are managed cohesively.

Analysis of the Reviewed Literature : Early diagnosis plays a crucial role in reducing the progression and complications of internal diseases. This study examines the effectiveness of modern diagnostic methods used in early detection, evaluates their practical implementation in clinical settings, and analyzes outcomes based on patients' medical records. The research highlights common challenges in the early identification of cardiovascular, respiratory, gastrointestinal, and endocrine disorders. Practical experience demonstrates that timely application of laboratory, instrumental, and screening-based diagnostic tools significantly increases treatment success and decreases hospitalization rates. Recommendations for improving diagnostic accuracy and integrating advanced technologies into primary healthcare practice are also presented.Internal diseases remain among the leading causes of morbidity worldwide, making early diagnosis a vital component of effective healthcare delivery. Timely identification of pathological changes helps prevent the development of severe complications, decreases disability rates, and improves patient outcomes. In recent years, the healthcare system has seen rapid advancements in diagnostic technologies, including biochemical analysis, radiological imaging, functional tests, and screening approaches.In the context of primary and secondary healthcare institutions, enhancing early diagnostic capabilities is particularly important for detecting common internal diseases such as hypertension, diabetes mellitus, chronic obstructive pulmonary disease (COPD), anemia, and gastrointestinal disorders. Despite existing progress, challenges remain, including insufficient screening coverage, limited access to advanced diagnostic equipment, and gaps in clinical decision-making among practitioners.

This study aims to explore practical experiences, evaluate diagnostic effectiveness, and propose recommendations for optimizing early diagnostic strategies in internal medicine.The research was conducted based on clinical observations, patient histories, diagnostic results, and primary care practices. Data analysis revealed several important outcomes: Complete blood count (CBC), biochemical analysis, and hormonal tests significantly increased the rate of early detection of anemia, diabetes, and thyroid dysfunction. Regular laboratory assessment improved diagnostic accuracy by 32%, especially for chronic diseases with mild early symptoms. ECG, ultrasound examination (USG), spirometry, and endoscopic procedures proved essential for identifying cardiovascular, respiratory, and gastrointestinal pathologies at early stages. Ultrasound diagnostics increased early detection of liver and gallbladder disorders by 28%. Spirometry helped identify COPD and asthma cases before clinical symptoms became severe. Screening for hypertension

and diabetes mellitus in the adult population showed positive outcomes, detecting previously unknown cases in 11–17% of participants. Body mass index (BMI) screening and lifestyle assessments contributed to early recognition of metabolic syndrome.Limited diagnostic equipment in some institutions. Low health awareness among patients leading to late visits. Inconsistent application of clinical guidelines by healthcare providers. Expanding laboratory and instrumental diagnostic capacities at primary healthcare units. Increasing medical staff training for applying modern diagnostic algorithms. Integrating digital health technologies, such as electronic medical records and AI-supported diagnostics. Conducting community-based awareness campaigns for early disease detection. ***Table 1: Baseline characteristics and age at diagnosis***

Characteristic	**Group 1 (Historical) (n=50)**	**Group 2 (MDT) (n=55)**	**p-value**
Male, n (%)	28 (56%)	32 (58%)	0.81
Mean Age at Diagnosis (years)	**4.2** ± 2.1	**0.8 ± 0.5**	**<0.001**
Pancreatic Insufficiency, n (%)	46 (92%)	51 (93%)	0.88

Clinical outcomes - To assess the long-term impact of the care model, clinical outcomes at 8 years of age were compared. Children in Group 2, who were diagnosed earlier and managed by the MDT, showed markedly superior nutritional and respiratory outcomes compared to children in Group 1. The mean BMI-for-age z-score in Group 2 was within the normal range, whereas it indicated moderate malnutrition in Group 1. Similarly, the mean FEV1% predicted for Group 2 was in the mild lung disease category, while for Group 1

it was in the moderate category. The rate of hospitalizations for pulmonary exacerbations was more than three times lower in the MDT cohort.

DISCUSSION : The results of this study clearly demonstrate the profound benefits of an integrated program for early diagnosis and multidisciplinary management of cystic fibrosis in the context of a developing healthcare system like Uzbekistan's. The reduction in the mean age at diagnosis from 4.2 years to 0.8 years is a critical achievement. This early identification is paramount, as it allows for the initiation of proactive therapies—such as pancreatic enzyme replacement and airway clearance—before the vicious cycle of infection, inflammation, and malnutrition can cause irreversible damage (Farrell et al., 2017). The significant delay in diagnosis in the historical cohort meant that these children were exposed to years of untreated malabsorption and recurrent infections, leading to the poorer outcomes observed. The superior clinical status of the MDT cohort at age 8 is a direct reflection of this early and comprehensive care. The difference in nutritional status, as shown by the BMI-for-age z-scores, is particularly striking. Maintaining good nutrition is a cornerstone of modern CF care, as it is intrinsically linked to better lung function and survival (Sermet-Gaudelus et al., 2009). The MDT
model, with its dedicated nutritionist and gastroenterologist, ensures aggressive and tailored nutritional support from the moment of diagnosis, preventing the growth failure that was common in the historical cohort. Similarly, the preservation of lung function in Group 2 (mean FEV1% of 85%) compared to the
moderate impairment in Group 1 (68%) highlights the efficacy of proactive respiratory care. The MDT's physiotherapist provides consistent training in airway clearance techniques, while the pulmonologist manages infections and inflammation according to established protocols. This proactive approach, coupled with better nutrition, helps maintain healthier lungs for longer. The corresponding reduction in hospitalizations not only improves the quality of life for the children
and their families but also reduces the economic burden on the healthcare system.

Our findings are consistent with extensive international data that has established early diagnosis via newborn screening and centralized MDT care as the gold standard for CF management (Elborn, 2016). This study provides the first local evidence from Uzbekistan, validating the adoption of these strategies in our specific socio-economic and healthcare context. While the results are encouraging, the study is not without limitations. Its retrospective design is susceptible to information bias, and the historical nature of the control group means that other

unaccounted-for improvements in general pediatric care could have contributed to the better outcomes. However, the magnitude of the differences observed strongly suggests that the integrated CF program was the primary driver of these improvements. The success of this pilot program provides a strong impetus for future policy. The next logical step is the phased implementation of a nationwide newborn screening program for CF. This would ensure that every child with CF in Uzbekistan is diagnosed within the first few weeks of life, maximizing their potential for a longer and healthier life. Concurrently, efforts must be made to establish and support more specialized MDT centers across the country to ensure
equitable access to high-quality care.

CONCLUSION : The introduction of a structured program for early diagnosis and a multidisciplinary team approach to management has led to transformative improvements in the care of children with cystic fibrosis in Uzbekistan. This modern care model resulted in a significantly earlier age at diagnosis, which in turn led to substantially better nutritional status, preserved lung function, and
lower rates of hospitalization. The evidence strongly supports the need to expand these initiatives, advocating for the establishment of a national newborn screening program and the development of a network of specialized CF centers across the country. Such measures are essential to ensure that all children born with CF in Uzbekistan have the opportunity to benefit from the life- changing advances in modern medicine.

References :

1. Elborn, J. S. (2016). Cystic fibrosis. *The Lancet, 388*(10059), 2519–2531. https://doi.org/10.1016/S0140-6736(16)00576-6
2. Farrell, P. M., White, T. B., Ren, C. L., Hempstead, S. E., Accurso, F., Derichs, N., ... & Levy, H. (2017). Diagnosis of cystic fibrosis: consensus guidelines from the Cystic Fibrosis Foundation. *The* Journal of Pediatrics, *181*, S4-S15.
3. Flume, P. A., Mogayzel, P. J., Robinson, K. A., ... & Cystic Fibrosis Foundation. (2010). Cystic fibrosis pulmonary guidelines: treatment of pulmonary exacerbations. *American Journal of Respiratory and Critical Care Medicine, 180*(9), 802-808.
4. McCormack, J., & Canny, G. J. (2004). The role of the multidisciplinary team in the management of cystic fibrosis. *Current* Opinion in Pulmonary Medicine, *10*(6), 543-547.
5. Sermet-Gaudelus, I., Poisson, A., & Colombo, C. (2009). Nutritional management of cystic fibrosis. *Journal of Cystic Fibrosis, 8*(Suppl 1), S16-S21.
6. Southern, K. W., Munck, A., Pollitt, R., Travert, G., Zemanova, P., & Schellevis, F. (2007). A survey of newborn screening for cystic fibrosis in Europe. *Journal of Cystic Fibrosis, 6*(1), 57-65.
7. Stephenson, A. L., Sykes, J., Stanojevic, S., Quon, B. S., Marshall, B. C., Petren, K., ... & Goss, C. H. (2017). Survival comparison of patients with cystic fibrosis in Canada and the United States: a population-based study. *Annals of Internal Medicine, 166*(8), 537-546.
8. Turkovic, L., & Caudri, D. (2016). The role of multidisciplinary care in cystic fibrosis. *Paediatric Respiratory Reviews, 18*, 49-51.