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Research Paper

PhD education and research at Tbilisi State University (TSU) Faculty of Medicine in the dimension of International collaboration

Medical Science

KEYWORDS : Scientific research, PhD Education, Bologna Process, Cardio-Renal Syndrome, anti-thyroid auto-antibodies, metabolic approach in Acute Coronary Syndromes, unintended pregnancy

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ABSTRACT

Higher education system of Georgia has been in a process of extensive reforms since 2004. The International cooperation aims to harmonize PhD education with ECTS and Bologna process that will enable students and young researchers to gain the advanced knowledge, skills and experience they require to successfully pursue their professional carrier. In conjunction with the International cooperation, PhD research projects at the TSU Medical Faculty strive to fully comply with the International standards of study methodology, statistical reporting, publication and principles of good scientific and ethical conduct. The article offers a brief overview of some of the ongoing PhD projects with emphasis on expected results and significance.

Introduction

Higher education system of Georgia has been in a process of extensive reforms since 2004. Georgia joined the Bologna Process in May 2005 and committed itself to become a constituent part of the European Higher Educational Area. Since that, higher education system consists of three cycles, including new paradigm of PhD education[1].

Scientific research in Georgia is regulated by the following laws: the Georgian Law on Higher Education, the Georgian Law on Science, Technologies and their Development, the Georgian Law on Georgian Academy of Sciences and the Georgian Law on State Grants.

The law on Higher Education was adopted in December 2004 and aaccording to this Law[2]: "The doctoral program is the third level of higher education, which is a combination of educational programs and research activities aimed at preparing the research workforce, and completed with awarding the academic degree of Doctor of Science".

One of the main priorities of the state policy is to assure academic freedom of study and research, provide and develop the necessary conditions for research and approximate the Georgian research system with the European standards.

The TSU key priorities are establishing and developing close links between TSU and world leading universities, scientific research institutions and educational centers mostly through the joint projects and exchange programs involving students, young scholars, academics and administrative staff. Surely, this cooperation is inclined towards sharing the experience gained by the students and improvement of the competencies of the faculty.

International cooperation for Education and Research

The Norwegian Centre for International Cooperation in Education (SIU) has funded the project - Doctoral Programme in Health Science: Norway Experience of Third Cycle Studies for Georgia for the period 2012-2015. The project was led by University of Tromso, Faculty of Health Sciences, Department of community medicine.

The project aims to harmonize PhD education with ECTS and Bologna process that will enable public health and related professionals to gain the advanced knowledge, skills and experience they need to operate effectively within the changed and changing environment, to respond to the existing challenges, including governmental strategy requirements. The project focuses on modernization of doctoral education through upgrading and modernizing teaching and research components.

In the framework of this project, participant universities aim to bring together educators, experts, researchers, professionals and students to have a role in the creation, formation, support and delivery of third cycle studies and thus, contribute to the current and future developments and capacity building in health care interventions that respond to local, national and regional needs of society.

Based on close cooperation with University of Tromso, TSU PhD students, post-docs and academic staff, have an opportunity to participate in exchange and joint international educational programs. They have a possibility to exchange the experience and best practices that will modernize the PhD Curriculum and teaching approaches, develop new teaching modules and teaching materials.

The project helped young researchers to gain valuable knowledge and experience, enhance their research skills. Participants were taught to evaluate medical researches critically, analyze data, and interpret the reliability of positive or negative test results. They were able to conduct and develop their own researches with the solid understanding of issues they were addressing in terms of epidemiology. The teaching course explored different research techniques, as well as when and how they should be applied. The statistical component of the course covered all the major statistical methods and gave hands-on experience in using these methods in practice.

Research priorities and expected outcomes

According to TSU research policy, research conducted at TSU must be of high quality and reliability. When approving PhD re-

search proposals, priority is given to those with scientific novelty and anticipated beneficial consequences. In conjunction with the International cooperation, PhD research projects at the Medical Faculty strive to fully comply with the International standards of study methodology, statistical reporting, publication and principles of good scientific and ethical conduct. This article offers a brief overview of some of the ongoing PhD projects with emphasis on expected results and significance.

Research 1: Some specific characteristics of interaction between cardiac and renal functions in patients with Type 1 and Type 2 Cardio-Renal Syndromes (CRS).

The aim of the study is to explore relationship between Right Ventricle (RV) failure, increased central venous pressure (CVP) and renal dysfunction manifested as reduced eGFR in patients with Cardio-Renal Syndromes Types 1 and 2.

The prevalence of moderate to severe renal impairment (defined as Glomerulal Filtration Rate (GFR) less than 60 mL/min per 1.73 m2) is approximately 30 to 60 percent in patients with Heart Failure (HF)[3]. The pathophysiology of impaired renal function in cardiovascular disease is multifactorial. Clinical importance of this interaction is illustrated by the following observations[4]:

Mortality is increased in patients with HF who have reduced GFR.

Patients with chronic kidney disease have an increased risk of both atherosclerotic cardiovascular disease and heart failure, and cardiovascular disease is responsible for up to 50 percent of deaths in patients with renal failure

Acute or chronic systemic disorders can cause both cardiac and renal dysfunctions.

The term Cardio-Renal syndrome (CRS) has been brought into use in the last decade. CRS involves both - the acute and the chronic conditions which are characterized by the heart's primary, and primary renal injury[5]. Recent investigations suggest that management of patients with primary cardiac and secondary renal dysfunction based only on the low-flow theory does not lead to improved outcomes[6]. There is a growing evidence to support the roles for elevated renal venous pressure and IAP in development of progressive renal dysfunction in patients with HF[7].

The research hypothesis implies that Right Heart dysfunction correlates directly with the level of renal impairment manifested by the reduced GFR in patients with CRS.

The study is observational-analytical (non-experimental) and is based on a retrospective chart review. Pilot study has been suggested to assess the adequacy of instrumentation and to provide statistical estimates for a larger study.

It is expected, that results of the study show that the evaluation of right ventricle function can provide significant information about development of CRSs. It is believed, that evaluation of right heart function will either provide sufficient risk prediction or early diagnosis of CRS, in order to improve its course and subsequently, affect the long-term outcome.

Research 2: The prevalence of auto-antibodies to Langerhans Islets Beta Cells (GAD and ZnT8) in patients with anti-thyroid auto-antibodies.

The aim of the research is to reveal the prevalence of auto-antibodies to Langerhans Islets Beta Cells (GAD and ZnT8) in patients with anti-thyroid auto-antibodies. In most of the cases Type 1 diabetes mellitus results from autoimmune destruction of the insulin-producing beta cells in the islets of Langerhans[8] and the antigens recognized by these antibodies include insulin, glutamic acid decarboxylase (GAD), the islet cell antigen IA-2 or ICA-512 and zinc transporter 8 (ZnT8)[9]. Auto-antibodies to beta cells appear in the blood several years before the clinical manifestation of the disease. Type 1 diabetes mellitus interrupts normal development in children and adolescents and carries the threat of severe complications in the most active period of life[10].

Type 1 diabetes mellitus is often connected with other autoimmune diseases, and the most frequent concomitant disease is autoimmune thyroiditis[11]. It is expected, that patients with antithyroide auto-antibodies are at increased risk of developing type 1 diabetes mellitus. Confirming the hypothesis will make it possible to think about prevention strategies in this group of patients in the future, when effective interventions become available.

Research 3: Efficacy of Metabolic Approach in Acute Coronary Syndromes: Corvitin Trial in Georgia.

The aims of this multicenter, randomized, open, comparative, controlled trial are: to study the effectiveness of the investigational drug Corvitin added to standard therapy in patients with Acute Coronary Syndromes, to explore tolerability and identify the possible side effects of the drug Corvitin, to compare the treatment results in study group with that of control group. It is believed that**,** Corvitin therapy as part of standard therapy in ACS will be associated with anti-ischemic effects, limitation of size of MI, prevention of LV remodeling, improvement of systolic and diastolic functions of LV; reduction of frequency of anginal pain occurrence during in hospital stay and the number of complications after myocardial infarction[12,13].

It is expected that the results of this research will add awareness and important information to the management and treatment strategies for the patents with diagnosis of Acute Coronary syndrome.

Research 4: Unintended pregnancy, its termination and prior usage of contraception in Georgia. The aim of study is to determine the prevalence of unintended pregnancy, its outcome and prior usage of contraception in women who terminated their unintended pregnancy with an induced abortion, and to establish the association with area of residence, age, level of education and ethnicity[14].

It is expected, that by detection of the prevalence of unintended pregnancies, its outcomes (induced abortion or prolonged pregnancy) and prior usage of contraception (modern vs. traditional) in women who terminated their pregnancy with an induced abortion and the association of socio-demographic characteristics with them will support to achieve further decreases of unintended pregnancies and subsequently induced abortion by identifying high risk women and promoting the use of effective contraceptive methods15.

Conclusion

International collaboration plays a significant role in improving research skills of young researchers and developing research standards that come in line with the International standards. As a result, strengthening and supporting research at Universities will imply significant socio-economic impact and benefit to whole society of Georgia.

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