

## REVIEW

By academician Venko Aleksandrov doctor of medical sciences

Regarding the PhD thesis on the topic “**Change in operative tactics based on intraoperative transoesophageal echocardiography**” of Dr Yassen Svetlomirov Getsov for the award of educational and scientific degree “Doctor” under scientific governance of prof. Ivo Petrov and assoc. prof Maya Belitova.

By order No. 10-07-33#5 of 26.07.2023 based on Art. 4, para. 2 of the Law on the Development of the Academic Staff in the Republic of Bulgaria, on Art. 2, para. 2 of the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria, and Art. 3, paragraph 2 in connection with Art. 32, para. 3 of the Regulations on the terms and conditions for awarding scientific degrees and holding academic positions at "Acibadem City Clinic UMBAL" EOOD and decision of the Scientific Council of "Acibadem City Clinic UMBAL" EOOD with Protocol No. 18 of 19. 07. 2023, I have been designated as an external member of the Scientific Jury for the review writing procedure.

Respectable Mr President of scientific committee, honourable members with all your scientific degrees and titles.

Currently Dr Getsov occupies a position of anaesthesiologist in ICU and operating theatres in Acibadem City clinic, Sofia.

Dr Yassen Getsov graduated from the Medical University of Sofia in 1999. He acquired a specialty in Anaesthesiology and intensive care in 2006. In 2009, he graduated with a master's degree in Health Management. His first medical job actually was as a nurse during his medical trainee years.

During the period 2000- 2007 he worked as a resident in “St. Ekaterina” hospital and from 2007 to 2013, he was an anaesthesiologist at “Tokuda Hospita” Sofia.

From 2011 to 2012 and from 2017 to 2018, he worked at University Hospital Southampton in UK.

Dr. Getsov had one month course in Paediatric cardiac anesthesia in Erasmus Medical Centre- Rotterdam, The Netherlands in 2002.

In 2012 he completed EACTA's fellowship program in Cardiothoracic anesthesia in Southampton, UK. In 2012 he went on a one week course of intraoperative TEE in Leicester, UK. In the same year, he passed EACVI and EACTA exam and was granted a certificate in Adult Transoesophageal Echocardiography.

Honourable Mr. President and members of the scientific jury,

The chosen topic for the PhD thesis is a question of present interest especially in the last ten years in the western countries and is gradually gaining interest in Bulgaria. The thesis submitted for defence consists of 167 standard A4 pages. The doctoral student precisely and clearly sets the **goal** of the dissertation, namely: To determine how intraoperative TOE affects the operative technique in cardiac surgical patients under CPB.

Nine **task** follow which clearly go thru the problem described. On my opinion at least two of these can be combined without making their understanding more difficult.

Honourable members of the jury,

I would like to discuss a problem about distribution of the number of the pages in different chapters of this dissertation.

The literature review occupies 95 out of 167 pages.

In this chapter physic principles of echocardiography are scrutinized. The chapter is illustrated with variety of figures and pictures pointing to basic principles of cardiac sonography. The information given is very useful and could be compared with basic course lecture as "Physics for anesthesiologists" and "Biochemistry for anesthesiologists" given by me and prof. Koytchev. In these lectures laws concerning dynamics and statics of fluids were discussed along with laws of vaporisation of liquids and so on.

All that matter is an important part of understanding of construction and way the anaesthetic equipment works.

In conclusion the volume of the chapter is bigger than usual. On the other hand it shows the knowledge of the candidate to the applied physics.

Thus I recommend part of this text to be written as attachment and a smaller volume about 30 pages to be left as a literature review. There is of course another option- the whole chapter could be published as a monography and this will be very useful.

One hundred eighty three patients were included in the research. Those were patients operated under CPB for a period for more than year.

The selection of patient has been made with precision, three patients were excluded because of inability to insert the probe. Selection allows thorough interpretation of the results. It is pointed that all data is derived from the hospital information system which makes the whole study extremely trustful.

All the features of the study are given in details- type of operation, echographic findings are divided on predictable and unpredictable and any change in operative plan are described. Dr. Getsov describes all difficulties and how they were faced. Some patients with contraindications for TOE were described as well.

During the time of echographic study hemodynamics were maintained as close to physiologic as possible, thus avoiding any complications.

Using a future tense in chapter "Methods" I found as a deficiency. The author should use one of the past or present tense.

Next two chapters i.e. "**Results**" and "**Discussion**" occupy forty pages with plenty colourful figures and tables. Results of the study are grouped according to nosology, intervention, type of thoracotomy, type of tracheal intubation- single or double lung, the former being pioneering study for this country and could be pointed as a distinct contribution in the relevant chapter.

The information obtained from the study is divided in standard- expected, new one- unpredictable and unexpected. This amplifies the usefulness of the thesis. Presenting of the newly found information in pie shaped diagram on page 118 is even more useful.

All patients are grouped according to surgical interventions- mitral, tricuspid, bypass surgery. All ungrouped findings are presented in table 9 p. 130. These include newly found atheromatous plaques, ventricular dysfunctions, aneurisms and so on.

Data showing patients with second run of CPB due to surgical imperfection is shown separately. In one of these cases, due to difficult weaning from CPB a calcium mass causing dynamic occlusion of LMS was found and a lifesaving bypass was done. Among other findings were PFO, missed abscess in aortic- mitral continuum.

TOE was routinely used as a method for deairing of heart chambers and for adjusting perfusion cannulae position in 24 patients.

In 27 patients symptoms that could be related to TOE have been described. These include pharyngeal pain and or pain during swallowing. No major complications were reported.

In discussion the author cites 135 articles, of which 12 by Bulgarian authors and the rest English written papers all published in renowned journals. In table 10, p. 138 the author presents results of eight foreign research showing their experience of change of the operative plan after TOE.

Statistics are done with contemporary methods.

Based on this Dr Getsov made 8 conclusions and an algorithm for indications for making intraoperative TOE as well 4 recommendations concerning physicians performing echo exam which I found very useful.

Contributions according to the author are nine which I fully agree with.

### **Conclusion**

From all above said, my conclusion is as follows:

Dr Getsov has chosen an interesting and modern which is suitable for doctoral thesis. The dissertation is made with competency based on well- established principles in the western countries and very cowardly applied technique by anesthesiologists in our country.

Above mentioned imperfections of the work can easily be altered and in fact might be used for further research. The literature review chapter can be published as a separate monograph.

Respectable president of the scientific jury, honourable members with all your scientific degrees and titles,

**I give my positive assessment and I heartily recommend awarding the scientific and educational title "DOCTOR" to Dr Yassen Svetlomirov Getsov.**

Sofia

12/08/2023

acad. V. Aleksandrov

Doctor of medical sciences

