

“How to be a Surgeon and Not to Die in the Attempt” Control of Basic Physiological Parameters in Perioperative Phase, in Surgeons from Punta Del Este, Uruguay. Descriptive Pilot Study

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Abstract

Background: There is a sense by the surgical community that the surgeon career and surgery itself is an unhealthy work or at least it creates stress and disturbances in the quality of life of surgeons. But there has been little study of the subject not only in our Country but also in the region and throughout the world. There is interest in studying the biological factors altered during the surgical procedure, which is novel in our field, in the region and has limited literature at international level. **OBJETIVE:** Assessment of changes in basic physiological parameters, blood pressure and heart rate of surgeons during a coordinated surgery.

Design: Descriptive.

Material and Method: N: 15 general surgeons. A short survey and measurement table was carried out; surgeons from Punta del Este, Uruguay, were studied. Main study variables: heart rate and blood pressure. A Timex frequency band and sensor was used, placing the sensor within the 15 preoperative minutes. Second main variable: blood pressure (BP) with manual measurement sleeve. Preoperative BP and immediate postoperative BP were measured, we were not able to measure intraoperative BP due to the lack of consent of the surgeons involved for the use of other devices different from the heart rate band. Secondary variables: years from graduation, years of practice, age, body mass index (BMI), number of medical co-morbidities, number of jobs, sleeping hours the night before. We took measurements to surgeons during a laparoscopic cholecystectomy.

Results: The mean preoperative heart rate was 77.8 cpm. The mean minimum intraoperative heart rate was 86 cpm. The mean maximum intraoperative heart rate was 115.2 cpm (86% with tachycardia at the surgery). The mean immediate postoperative heart rate was 89.5 cpm. The mean heart rate 15 minutes after the postoperative phase was 80.1 cpm. At the immediate preoperative phase 53% of surgeons had elevated BP level (usual normotensives). At the immediate postoperative phase 73% of surgeons had elevated BP level. One of the surgeons had to be treated in the emergency room since he had up to 250 mmhg in his systolic bp.

Conclusions: The heart rate increased during the immediate preoperative phase, maximum increase during intraoperative phase with high percentage during surgery with sustained tachycardia and increase during postoperative phase compared to the beginning. There were increased blood pressure values at preoperative phase which were maximum in the immediate postoperative phase and also increased during postoperative phase 15 minutes after the surgery had ended. We found elevated BP level in young surgeons and with prior normal BP.

Keywords: Surgeon; Physiological Parameters

Introduction

The sensation on the part of the surgical community exists of which the profession of surgeon and the surgery in if it would be an unhealthy work or that at least generates stress and alterations in the quality of life of the surgeons. But little one has studied of the subject not only in our Country but in the region and also in the world. For that reason the interest of the authors to develop an initial study of biological factors that are altered during the surgical act, something that is totally original in our means, the region and practically without bibliography at international level.

Recently in February of 2017 the first indexed publications exist that speak of skeletal pains muscle in oncologic surgeons [1]. EL Dr. Frutos Ortiz in a communication year 2006 makes a statistical survey to study stress in surgeons in Argentina being received 600 surveys of surgeons [2]. It found that the stress of the surgeon repels enough in the familiar scope little in connection with colleagues and less still in the patient medical relation, would seem that the surgeon does the possible thing to follow in good surgical march in spite of everything, not only we are convinced of these alterations in the social and familiar surroundings but we began to study how one alters to Biology before repeated stressful acts that represents a surgery and the responsibility that the surgeon has when he has the life of his patient in his hands. In a previous communication preliminary that continuous developing we demonstrated high numbers of burnout in the surgeons of Punta del Este [3] in this second study we try to study simple variables of the physiology of the surgeons during the act peri-operative in surgeries of median complexity programmed, the deprived centers of attendance of our locality, the Cantegril Sanatorium and the Mautone Sanatorium of Punta del Este. It is so we designed a prospective descriptive work, enters the months of November of 2016 April of 2017.

Objective of the Study

The Objective of our investigation is to evaluate changes in basic physiological parameters, arterial Pressure and cardiac frequency, of the surgeons of Punta del Este, Uruguay during a surgery of coordination Laparoscopic cholecystectomy.

Material and Methods

We realise a prospective and pilot descriptive Study, with a n: of 15 surgeons.

We study 15 local general surgeons who represent 89% of the surgeons of Punta del Este at the time of the study. Two surgeons did not participate in the work by personal reasons. I make a small survey and one designated 2 investigators (assistants of class of the equipment of simulation of the Claeh University, of Punta del Este) who would make the surveys and measurements in independent form.

The surgeons did not know the values of the measurements during the study. One of the surgeons only exercised and towards sport in regular form.

The main variables in study were: cardiac frequency and sanguineous pressure. As far as the cardiac frequency one was moderate; the preoperative Cardiac Frequency (FCP), intra-operating cardiac Frequency (FCIO), immediate cardiac frequency post-operation (FCPO) that was measured with a band and sensor of frequency of the brand timex, of high precision and reliability (this test and it was compared with a monitor of hi-fi of medical use GE Brand with equal results) placed the band with sensor in the 15 preoperative minutes.

The second main Variable was the measurement of sanguineous pressure (PA) with sleeve calibrated manual of measurement. Immediate preoperative PA and PA post-operation. The secondary variables were: years of received, years of surgeon, age, index of corporal mass (IMC), I number of medical comorbidities, number of uses, hours of dream the previous night.

We take the measurements to the surgeons during a noncomplicated laparoscopic cholecystectomy, programmed. Although we realised registries in other surgeries initially to fit to the procedimientos and equipment of measurement, we tried to standardize the

measurement in the same surgery. In no of the surgeries a greater complication existed nor existed conversion. In average the surgeries lasted 1 hour approximately.

All the measurements were realised with the same sensors of cardiac frequency and the same sleeve of pressure and by the same 2 designated investigators.

Results

The medical average of years of received from was of 24 years (7-36 years) and the average of years of Surgeon of 18.7 years (2 - 32 years).

The average deeded was of 51,8 years (33 - 62 years).

As soon as allMC corporal: 20% (3) had a normal weight, 40% (6) overweight, 34% (5) obesity and a 6% (1) morbid obesity.

20% did not only have some medical comorbidity. 40% were hypertensive medicated for this. No of the participants had some greater comorbidity except for 1 with antecedent of a ACV without sequels.

84% of the participants at least worked in 3 uses (welfare centers) different and 26% only worked only in a place.

In previous average to the surgery the surgeons had slept 5,8 hours the previous night.

The average of the preoperative cardiac frequency was of 77,8 cpm.

The average of the cardiac Frequency intra-operating minim was of 86 cpm.

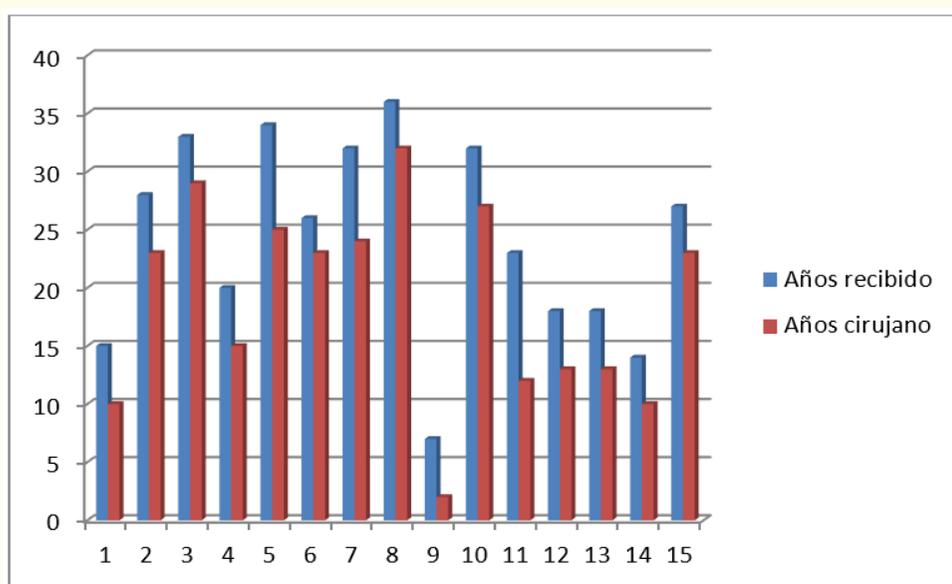
The average of the intra-operating cardiac frequency maximum of 115,2 cpm (86% with tachycardia in the surgery).

The average of immediate cardiac the postoperative frequency was of 89,5 cpm.

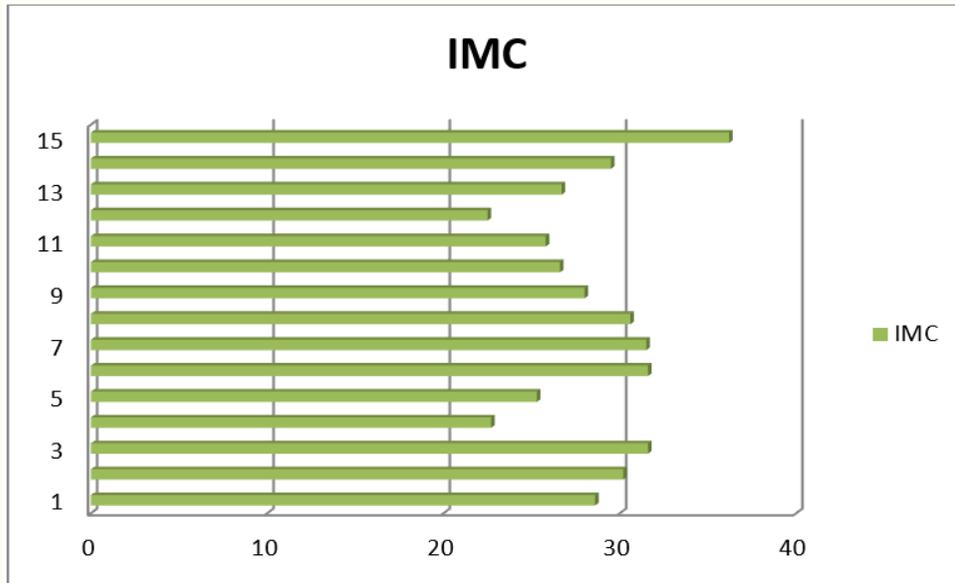
The average of the cardiac frequency to the 15 80,1 minutes of postoperation was of cpm.

In preoperative immediate 53% of the surgeons they had high numbers dePA. (although the individuals related good control of previous PA in their daily life).

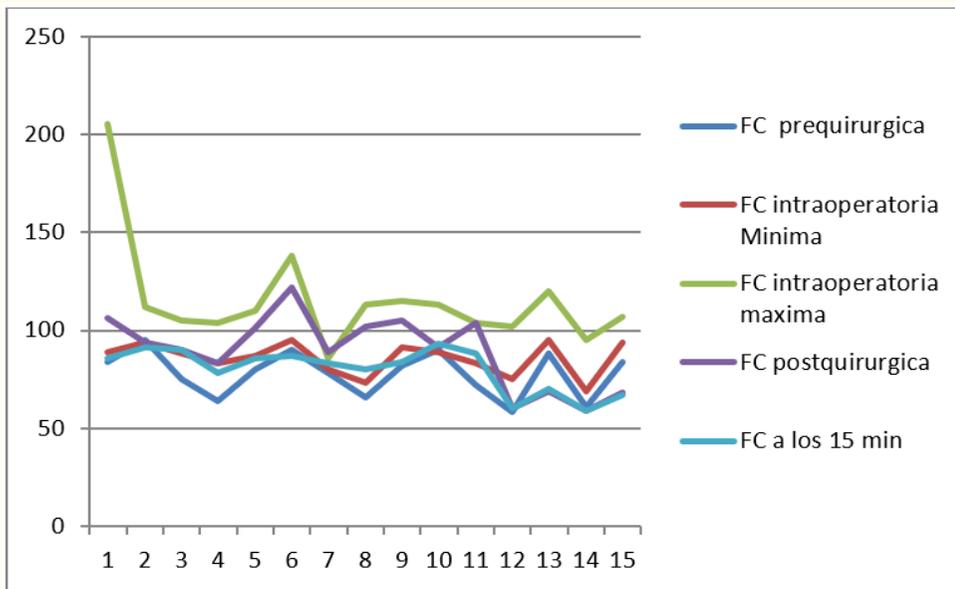
In postoperation immediate 73% of the surgeons it had lifted numbers of PA. In an occasion one of the young surgeons of the group in study it in emergency had to be dealt in the room of the sanatorium with oral, sublingual medication via managing to control the PA, was realised diagnosis of HTA to this secondary surgeon to this work at the moment is in medicinal treatment.



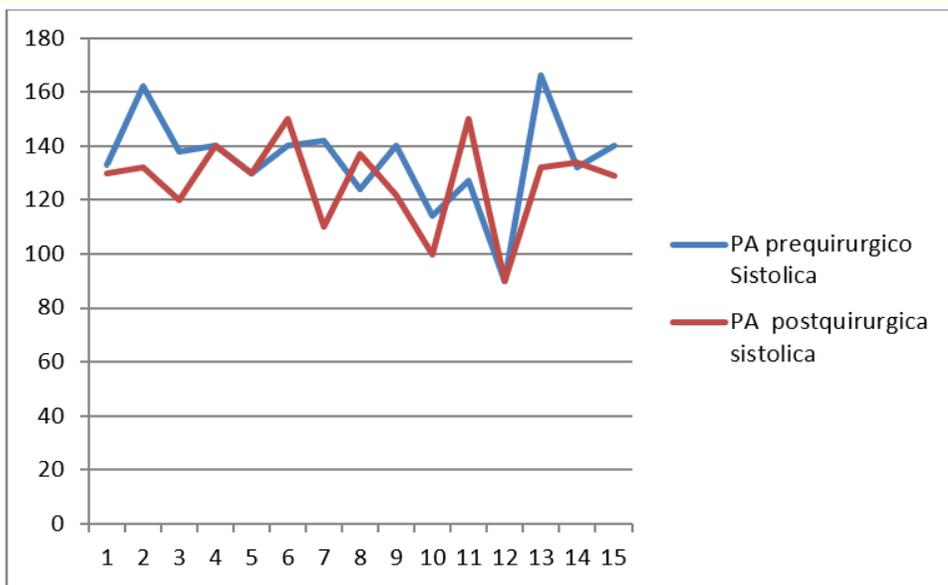
Graph 1: Years received as a physician/surgeon.



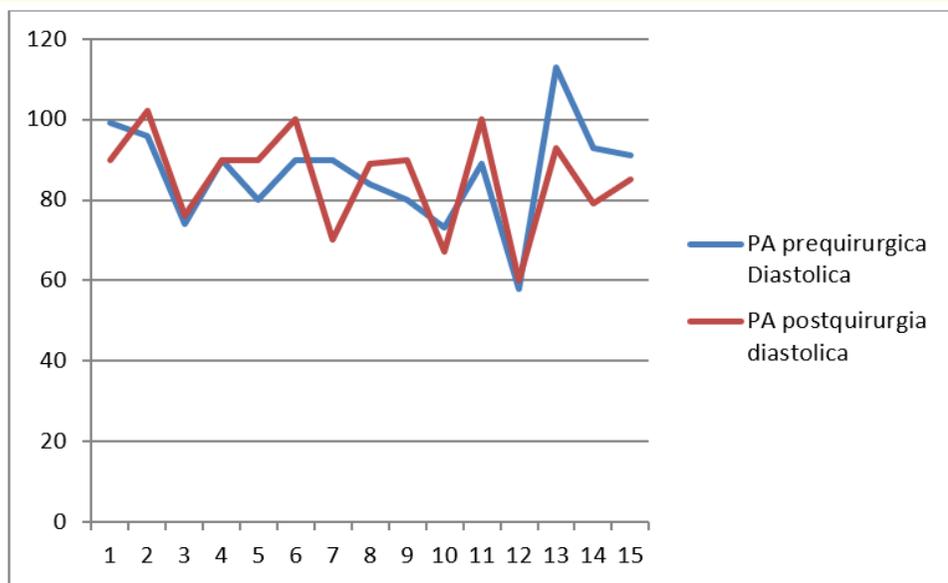
Graph 2: Body mass index of Surgeons in study.



Graph 3: Heart rate.



Graph 4: Arterial pressures diastolicas prequirurgicas and postoperative.



Graph 5: Arterial pressures diastolicas prequir/postquir.

Discussion

We present an original work for our means and the region, that describes basic the physiological alterations of the surgeons in perioperative. It is a work of low complexity in its design, although to reunite to the surgeons of a whole city and of institutions different taken from it practices it is not simple, is as well an original work in our means and in the region and by the bibliography that we reviewed and that we solicited to review by our university librarian, it is an innovating work at least in our revision. The times are few that the surgeons are the study object and not them investigators. In this work the papers were reversed and the medical surgeons happened to be our training group and not patient them as he is habitual, all the surgeons of the group signed a consent accepting to be in the work and power to publish the data collected here. Although other communications exist that in situ inform on ergonomic wearing down in surgeons and injuries in surgeons by their task [1] the measurement in a surgical act like is it the laparoscopic surgery that forces the surgeon to evolve in a nonergonomic situation and with a coordination eye hand different from the habitual thing, of biological parameters although they are these basic ones generates a contribution to the knowledge of the alterations of the surgical act in itself on the surgeons. In 1974 Freudenberger he defines burnout like: “It is a state of fatigue or frustration that takes place by the dedication to a cause, life form or of relation that does not produce the awaited reinforcement” [4,5]. We already knew previously that our group of surgeons was put under stress who generated elevated levels of burnout, a little over the international registries and we presented it in the previous Argentino de Cirugía Congress [3]. In this communication we wanted to quantify in the physicist and not in psychological the alterations that could present our subjects of study. Or for a long time he has published themselves and studied the neuromuscular fatigue in athletes [6], as well as affects the repetition of movements his performance but little or null information on this area we have in the surgeons, the athletes generally previous to a performance or athletic event has a phase of heating and physical training and mental, the surgeons generally we lowered of 30 less than the automobile after to handle never min or but habitually in the traffic we got dressed and we changed and quickly we began to operate. Colleagues have studied the importance of warm up in previous surgery to a laparoscopic cholecystectomy in endotrainer and as this would improve the surgical performance [7], something that is little usual that pass in our services of surgery and probably in the majority of the services of oral surgery [7].

This demonstrated that the doctors and the personnel of health in the USA work beyond his you already limit physicists and this also has repercussions in the personnel of health and in the security of the patients [8,9]. But null they are publications repercussion of the medical daily work and surgical on general in our means, minimis at regional level and little surgeons at international level [1,2,8,9]. No we found in the consulted bibliography a communication that informs live measurements during an operating act into biological parameters into the surgeons.

We know the limitations our study a small n, but that is representative of almost the totality of the surgeons of our means, also very basic physiological parameters studied being able to add others as they are catecholamines in sweat, glycemia's, studies with holter, etc. that we thought to realise in a second study already planned with a center of reference of Bs.As. Argentina thus to continue with this project, power to increase the n of the study and to generate a study of high impact at regional level.

The design and descriptive type of this study, the reach of this communication limits much but it was end initial foot to continue in this project that not only is original but it will bring about new communications surely by this and tros equipment interested in the thematic one of the occupational health in the surgeons.

This pilot I generate impact at local level and in the subjects of study realising diagnosis of a severe arterial hypertension in a presumably healthy surgeon and young that at the moment this under pharmacological treatment and even generate a change in his habits of life, even resigning to one of his uses to concentrate his work in an only service. The rest of the surgeons in their majority realised routine medical controls reason why the pilot study woke up interest in the subjects to improve its habits of life and parameters of health.

Conclusions

We find increases of the immediate preoperative cardiac frequency in, the increase maximum during the intra-operating one with high percentage that course the surgery in maintained tachycardia and increase in post-operation with respect to the beginning of the surgery. Values increased of sanguineous pressure in the preoperative one existed that were maximum in the intra-operating one and also had an increase in post-operation. We find numbers of PA lifted in young surgeons and with previous Normal Pa, one of the study subjects had in emergency to be derived to the service by a symptomatic Hypertensive tip during the study. The only surgeon who makes exercise normally was the unique one that he maintained the measured biological parameters within the normal rank in all the study.

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