

# Cartas ao Editor

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## *Physiotherapy in cardiac surgery*

It is well known that the most common respiratory complications after cardiac surgery are related to the decrease in respiratory function and the presence of atelectasis [1]. Chest physiotherapy is widely indicated to minimize the adverse effects of cardiac surgery and immobilization along the hospital stay, such as vital capacity, functional residual capacity and the presence of atelectasis [2]. Conventional chest physiotherapy includes respiratory exercises and early mobilization of the patient. In the other hand, non-invasive ventilation is more and more used to intense respiratory therapies. However, how aggressive should physiotherapist be in the post-operative period?

The study by Franco et al. [3] is very interesting and adds important information to what we know about respiratory function and physiotherapy after cardiac surgery. This study aimed to assess the influence of conventional physiotherapy and non-invasive ventilation in pulmonary function in patients after cardiac surgery. Patients randomized to conventional physiotherapy performed diaphragmatic breathing exercises in association with mobilization of low and upper limbs, clearance maneuvers, relief of cough and lung reexpansion techniques. Patients randomized to non-invasive ventilation used BiPAP in spontaneous mode for 30 minutes twice a day with inspiratory and expiratory pressures of 8-12 cmH<sub>2</sub>O and 6 cmH<sub>2</sub>O, respectively. The authors showed that, after 48 hours of cardiac surgery, the patients in the non-invasive ventilation group showed greater respiratory function (tidal volume, vital capacity, expiratory peak flow, maximal inspiratory and expiratory pressures) in comparison to the conventional group. Moreover, respiratory rate, the score of atelectasis, heart rate, systolic and diastolic blood

pressures were lower in non-invasive ventilation group.

However, it would be important to have some data about the incidence of atelectasis, pulmonary complications and lung function along the hospital stay and follow up. Maybe the respiratory function and the incidence of atelectasis are not different along the patient's follow up, considering non-invasive ventilation and conventional physiotherapy. Also, an especial attention must be paid to the survival. This information is very important and could imply in cost and patient's well being [4].

This way, new trials are important to elucidate the best

physiotherapy strategy in patients after cardiac surgery and its impact in respiratory function and survival.

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## Answer

## Dear Editor

In response to the letter of Carvalho and Jatene, firstly we would like to thank their interest in our research and their opportune comments. Carvalho and Jatene pointed that some data regarding the incidence of atelectasis, pulmonary complications and lung function along the hospital stay and follow up would be interesting.

In our study [1] none patient have experienced cardiac, renal, infectious or respiratory (besides atelectasis) post-operative complication. Only one patient in the conventional physiotherapy group (control group) had a

minor stroke. There was no hospital mortality; however we do not have follow up data beyond 30 days of hospital discharge. The mean time in the intensive care unit (ICU) was 2.3 days for the control group and 2.2 days for those who received non-invasive ventilation (BIPAP treatment group,  $P=0.442$ ). The hospital stay was 9.3 days for the control group and 7.3 days for the BIPAP group ( $P=0.182$ ). We do not have data regarding respiratory function after ICU discharge, but the evolution of the patients during its post-operative period in the ward was uneventful.

Social factors is the main reason for a post-operative hospital stay longer than the observed in developed countries, or even in Brazilian hospitals located in larger metropolitan areas. Regarding post-operative atelectasis, we did observed a higher incidence of more pronounced atelectasis in the control group, but the differences did not reached statistical significance, certainly due the size of our sample. However we have to consider that a level of significance below 0.5 is a convention, and we have obtained  $P=0.07$ . Therefore, the results may not have statistical significance, but certainly they have clinical relevance. However, all patients who experienced post-operative atelectasis completely recovered with additional specific respiratory therapy, mainly by means of incentive spirometry and/or intermittent positive pressure breathing through a mouth piece connected to a BirdMark 7@ventilator.

Best regards,

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#### ***Cardiopatias congênitas no interior do Nordeste brasileiro: dificuldades e soluções***

Caro Editor,

Tendo nesses últimos 10 anos de minha vida profissional trabalhado no interior do Nordeste, inicialmente em Barbalha-CE, Mossoró-RN e, atualmente, Sobral-CE,

gostaria de apresentar as dificuldades encontradas até aqui em se conseguir desenvolver um serviço de cardiopatia congênita. A principal dificuldade é a contratualização junto à fonte pagadora por 99% de nosso movimento cirúrgico, o SUS, e sua gestão. Até começamos a operar crianças recém-nascidas, implementamos o serviço com ambulatório, fisioterapia, cardiologista pediátrica e anestesia, material adequado, mas quando começamos, depois de poucos meses, veio uma redistribuição dos recursos financeiros das Secretarias de Saúde, e a parte pediátrica coube aos hospitais da capital.

Mas como? Distávamos mais de 500 km, no primeiro caso, e 300 km, no segundo e terceiro municípios. Como fazer pessoas carentes, que mal tinham onde morar e alimentar-se em sua terra natal, deslocar-se para capital e esperar nas longas filas dos hospitais públicos por uma vaga? O que fizemos? Continuamos nosso atendimento, não desmobilizamos nosso grupo e continuamos operando os maiores de 12 anos, contemplados pela contratualização, e os mais jovens conseguiam tratamento por meio de contatos pessoais com grupos da capital, que por conta das dificuldades, montavam organizações sociais e casas de apoio para retaguarda desse atendimento.

Bem ou mal, conseguíamos ir adiante, ora operando pacientes mais urgentes e recebendo administrativamente, ora encaminhando para os Serviços na capital. Porém, essas estruturas de apoio, hospitais privados que atendiam ao SUS, não conseguiram sobreviver aos atrasos e descasos com a saúde, agora temos uma nova dificuldade, mas não vamos desistir. Nosso Serviço tem aumentado, a interiorização da Medicina é uma realidade com os egressos das primeiras turmas das Faculdades de Medicina retornando depois de Estágios e Residências juntando-se às fileiras para continuarmos a prestar o melhor atendimento possível às crianças portadoras de cardiopatias congênitas [1-3].

**Fabiano Gonçalves Jucá, Mamede Johnson Aquino Filho – Sobral, CE**

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