

Realistic simulation using high fidelity manikin in post operative state of rectal sigmoidectomy: an evidence based practice integrating teachings to clinical picture of complications

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BACKGROUND. In medical education, there should be exposure to live patients so that medical students and doctors can acquire the necessary skills. On the other hand, realist simulation by using role play and manikin is a methodology where the medical student can learn, discuss and even make mistakes, without hurting or losing the patient. In surgery, complications in post operative state can occur.

HYPOTHESIS. Our objective was to report a practical class of post operative (PO) complications after rectal sigmoidectomy in a Intensive Care Unit (ICU) using different settings in manikin Laerdal SimMan®.

METHODS. Manikin Laerdal SimMan® at Interdisciplinary Center for Simulation (NIS), University Nove de Julho-UNINOVE was used. There were three scenarios: *Scenario 1.* A male patient, 35 y.o., with a rectal tumor and all his pre operative exams was showed. He has undergone to neoadjuvant radiotherapy. He was in the 1st PO day of open rectal sigmoidectomy. He complained about abdominal pain. We have set SimMan® with the clinical picture: tachycardia, T 37.5°C, pain in hipogastric region, debit of drain located in left iliac fossa: 1.5 liters, citrine, debit of urinary catheter drainage 1.5 liters, decreased bowel sounds. *Scenario 2* In the 3rd PO day he referred dyspnea, chills and sweat. Clinical picture of pneumonia was set: cough, dyspnea, tachypnea, tachycardia, normal blood pressure, decreased oxyhemoglobin saturation, hyperthermia. Auscultation showed coarse crackles. *Scenario 3.* In the 7th PO day, he complained about dyspnea, chest pain, and sweat. Clinical picture of pulmonary thromboembolism was set: tackypnea, tachycardia, widened A-a DO₂ difference, hypertension, decreased oxyhemoglobin saturation, hyperthermia. Auscultation showed fourth heart sound. All treatments should be done within 3 min. If not, SimMan® would have cardiac arrest in *Scenarios 2 and 3.* After finishing, they had to make a medical summary and discuss about the treatments. In *debriefing*, tutors have made a brainstorm discussion and have asked students about their feelings and impressions.

RESULTS. *Scenario 1.* Students should make physical examination and they should ask computed tomography with intravenous contrast. They should prescribe fasting and they should call for Urologist assistance. Hypothesis of Iatrogenic lesion of urether should be done. They should suggest uretero-uretero-anastomosis as treatment. They should discuss about the possibility of this kind of iatrogenic lesion in this type of surgery mainly when radiotherapy had been done pre operatively. *Scenario 2:* Students should ask for X-Ray and blood exams. After diagnosis of pneumonia, they should choose chips of oxygen mask, antipyretics, and antibiotics. They could suggest respiratory rehabilitation and walking. *Scenario 3:* Students should choose oxygen mask and ask for a Computed Tomography or Magnetic Nuclear Ressonance or Pulmonary Scintigraphy. After diagnosis, chips of antipyretics and anticoagulant should be choosen. In *Scenarios 2 and 3*, some groups failed. However, they have performed cardio respiratory resuscitation. After *debriefing*, students have discussed about the importance of integrating all knowledge from classroom to a truly clinical picture.

CONCLUSION. Medical simulation using SimMan® as a tool to teach and train surgery may be an evidence based practice integrating teachings to clinical pictures of post operative complications. It is an active and innovative methodology that integrates theory and practice.

