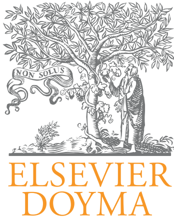

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Case report

Successful extended cerebrocardiopulmonary resuscitation of a sudden death patient: A case report☆

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ABSTRACT

This is the case of a 63-year-old patient, who is a plastic surgeon and has a history of aortic valve replacement, hypertension, pacemaker and anticoagulation, who experienced cardiac sudden death in the OR. Basic and advanced life support maneuvers were initiated; there was evidence of ventricular fibrillation and the patient was defibrillated 4 times unsuccessfully. Epinephrine, bicarbonate, amiodarone and lidocaine were administered. The patient alternated between ventricular fibrillation, pulseless electrical activity and asystole. Resuscitation was maintained throughout the process which lasted one hour and 45 min, including transfer to a third level clinic where the patient was considered to be asystolic. Following an additional discharge and amiodarone, the patient recovered spontaneous circulation; the vital signs were normalized and the patient remained in the ICU under hemodynamically stable conditions. After 18 h, the patient woke up with no evident neurological damage and remained in the ICU for one month for treatment of the ischemic-reperfusion syndrome. After 20 more days of physical therapy in his hospital room, the patient was discharged with no neurological deficit and a recommendation for home-based rehabilitation. Three months later, the patient is doing perfectly well and leading an active family, social and labor life.

This narrative discussion considers some interesting aspects reported by other authors on the topic, based on a bibliography search in Medline, Lilacs, Scielo, and Ovid.

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Reanimación cerebrocardiopulmonar prolongada exitosa en un paciente con muerte súbita: un reporte de caso

Palabras clave:
Muerte súbita
Reanimación
Paro cardiaco
Marcapasos
Enfermedad coronaria
Valvulopatías
Encefalopatía isquémica-hipòxica

RESUMEN

Se reporta el caso de un paciente de 63 años de edad, cirujano plástico facial de profesión, con antecedentes cardiovasculares de reemplazo valvular aórtico, hipertensión arterial, marcapasos y anticoagulación, quien presenta muerte súbita de origen cardíaco en salas de cirugía. Se inician maniobras de reanimación básica y avanzada, se evidencia fibrilación ventricular y se desfibrila en 4 oportunidades sin éxito, se aplican epinefrina, bicarbonato, amiodarona y lidocaína. El paciente alterna entre fibrilación ventricular, actividad eléctrica sin pulso y asistolia. La reanimación se mantiene constante durante todo el proceso, que dura 1 h y 45 min, incluyendo el traslado a una clínica de tercer nivel, en donde consideran que el paciente está en asistolia. Tras otra descarga y más amiodarona, el paciente recupera la circulación espontánea, se normalizan los signos vitales y se deja en la UCI en condiciones hemodinámicamente estables. A las 18 h el paciente despierta sin daño neurológico evidente, permanece en la UCI por un mes, resolviendo los problemas relacionados con el síndrome isquemia-reperfusión, y luego de 20 días más con fisioterapia en la habitación, el paciente es dado de alta con recomendaciones de rehabilitación en el hogar sin ningún déficit neurológico. A los 3 meses del evento el paciente se encuentra reintegrado a la vida familiar, social y laboral en perfectas condiciones. Luego de la búsqueda bibliográfica en las bases de datos médicas electrónicas de: Medline, Lilacs, Scielo y Ovid, se discuten en esta revisión narrativa algunos aspectos interesantes reportados por otros autores en relación con este tema.

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Clinical case

The case is of a 63-year-old patient, facial plastic surgeon, with a relevant cardiovascular history: 1 – Aortic valve replacement with mechanical prosthesis performed 10 years ago because of aortic insufficiency; 2 – Anticoagulation with warfarin; 3 – Pacemaker because of a third degree AV block as a result of valve surgery; 4 – HBP treated with metoprolol 25 mg-day; 5 – Dislipidemia and undergoing statin treatment. The patient experienced a cardiac arrest just when he was about to start a surgical procedure in the OR. The patient was immediately placed on a stretcher in the OR. The clinical examination revealed an unconscious, cyanotic patient, pulseless and with dilated and fixed pupils. The Code Blue/5 link was immediately activated and basic and advanced life support was initiated. An orotracheal tube was placed, the anesthesia machine was connected for manual and mechanical ventilation and a cardiac massage was started alternating 30 compressions and 2 ventilations. The ulnar vein was catheterized and the patient was under monitoring which showed ventricular fibrillation that was unsuccessfully treated with a monophasic discharge of 360 Jules; three additional 360 Jules defibrillations were attempted unsuccessfully, with asystole tracing. The physician ordered the administration of epinephrine 1 mg every 3–5 min, lidocaine 1 mg/kg, bicarbonate 1 vial and amiodarone 150 and 300 mg. Under this persistent and uninterrupted resuscitation regime, 60 min elapsed with on-and-off ventricular fibrillation, pulseless electrical activity and asystole. Clinically the patient remained cyanotic, pulseless and with no signs of spontaneous circulation recovery. Past cardiovascular events will explain the difficulty in rapidly obtaining sinus rhythm and effective spontaneous circulation. The clinic cardiologist found no pacemaker activity and agreed with the anesthesiologist that the patient was asystolic. The decision was made to transfer the patient to the closest third level clinic and during transport ventricular fibrillation (VF) was interpreted and a new 200 Jules discharge was administered with the bifasic Automatic External Defibrillator with no favorable response.

The third level emergency colleagues felt that the arrest was irreversible, the electrical activity was absent and resuscitation was already too extended (105 min); however, a few minutes later the patient recovered his femoral pulse and cyanosis started to disappear. An echocardiogram showed a functioning heart with an ejection fraction (EF) of 35%. The massage was stopped and the norepinephrine/amiodarone drip was increased, rapidly accomplishing the sinus rhythm, BP 95/45, $\%O_2$ Sat 95% and capnography 50 mmHg. The patient was transferred hemodynamically stable to the Intensive Care Unit (ICU) in order to continue with the fifth link (post-heart arrest integrated care).

Arterial gasses at admission to the ICU showed a pH of 6.95, HCO_3 15.4, $PaCO_2$ 70, BE -16.7, $\%O_2$ SAT 59%, and lactate 5.5. In the immediate phase following the post-arrest syndrome in the ICU, coronary angiography, brain-CT and continuous EEG for 6 h were performed, all with normal results, ruling out any coronary disease or major cerebrovascular events. Sedation was lowered at 18 h and a first evaluation was done for a neurological prognosis, finding normal bilateral pupillary

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