

RESUSCITATION 2018
New technologies in resuscitation
20 - 22 September • Bologna • Italy

Intraosseous (IO) access in neonate with birth weight 2300 gr in cardiorespiratory arrest, a challenge in pre-hospital emergency care

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Background

Training



Initial Trauma Care SAMUR
EZ-IO Workshops

Experience



More than 300 cases
registered up to 2015

Incidence

11,883 critically ill patients

3 year old minors: 84
1 year old minors: 31

2007-2017

SAMUR - Protección Civil

Endorsed by

Manual of Procedures
SAMUR - Protección Civil



Use of the intraosseous route in a
premature infant (Arch Pediatr 1998)

Nasimi A, Gorin P, Berthier M, Bousse-
mart T, Follet-Bouhamed C, Oriot D

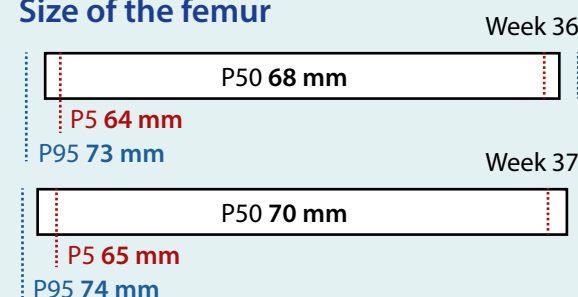
- Toulouse neonatal resuscitation unit.
- 34-week-old pre-term neonate.
- 2200 gr (14 days of life).
- Septic shock.
- Subclavian catheter was pulled out.
- IO access (20 G, distal hole, Cook).
- Left in place for 14 hours to infuse antibiotics, inotropic support, blood products and colloids.

Intraosseous (IO) access in neonate with birth weight 2300 gr



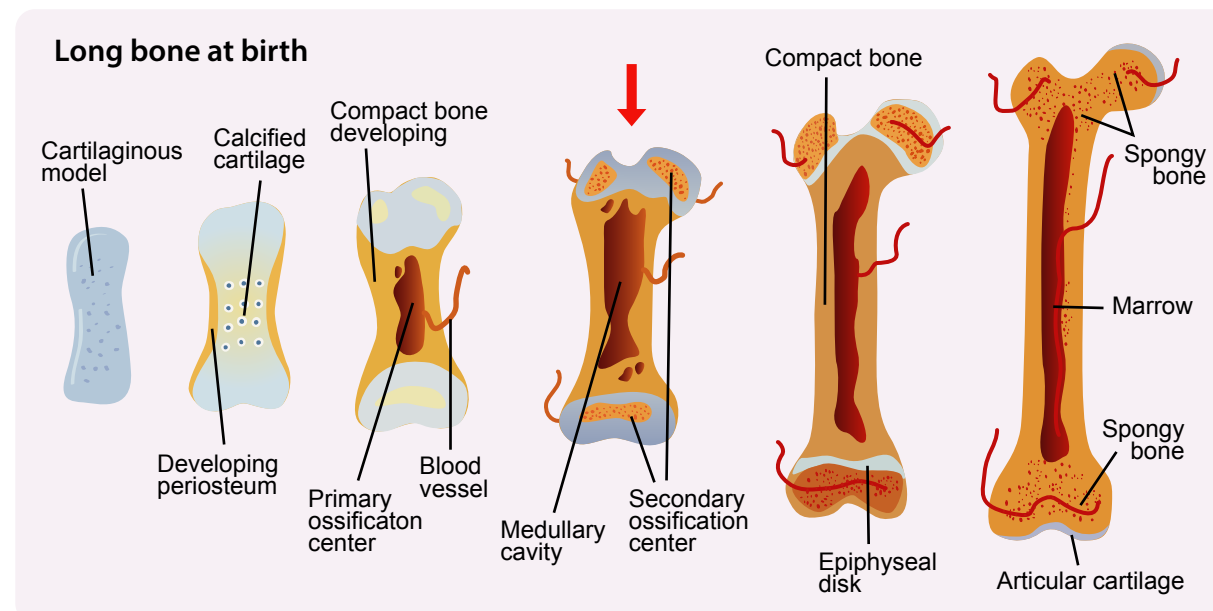
- Neonate weighing 2300 grams at birth after 37 weeks of pregnancy
- One-week old
- Cardiac arrest
- Central cyanosis despite of mechanical ventilation
- Vomit containing milk and blood
- Primary Health Care facility.
- Instrumental CPR

Size of the femur



2 failed attempts to obtain an intraosseous access

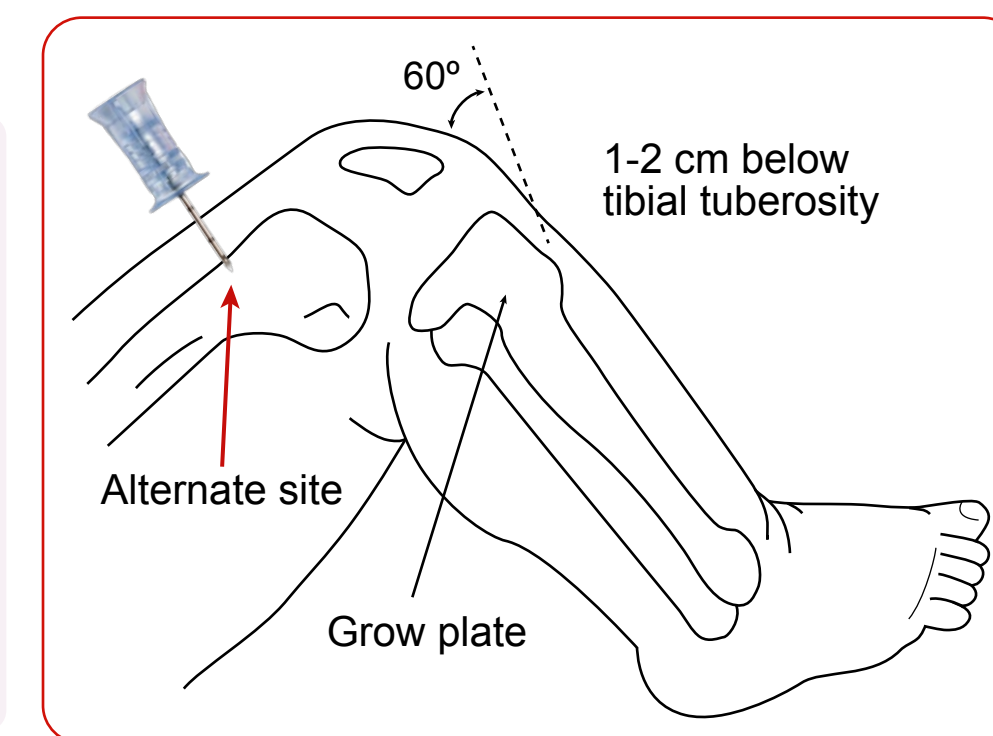
- Causes:
- Low density bones
 - Vibrations during CPR manuevres



Femoral IO Access

Left in place for 50 minutes

Drugs infused: adrenaline, sodium bicarbonate,
glucose (glycemia : 12 mg/dl = 0,666 mmol/l)



Conclusion

- In premature and low-weight critically ill infants, the use of the intraosseous route could be considered as the first option.
- IO device is safe and fast as long as the professional has training in its use.
- In premature and low-weight infants, distal femur could be more advisable than proximal tibia.
- DELTA team: senior nurses supporting and sharing experience with nurses on duty.



1995
Cook IO needle



1998
Bone injection gun (BIG)

2005

DELTA Team
SAMUR - Protección Civil



2007
EZ-IO device
Emergency Congress, Cuenca
Nurse evaluation of a new device
for insertion of Intraosseous route

SEMES Congress, Tarragona
Survey about the use of the intraosseous
route in the prehospital setting

2009

SEMES Congress, Benidorm
New EZ-IO device for intraosseous
vascular access, an effective alternative
in the out-of-hospital environment

2010

XII National Congress, Pamplona
Use, evolution and comparison between EZ-IO
device in two prehospital emergencies services

Systemic fibrinolysis through intraosseous
vascular access in ST-segment elevation
myocardial infarction
Annals of Emergency Medicine

2012

SEMES Congress, Oviedo
Intraosseous route in severe trauma: four
years of experience in SAMUR-Protección Civil

2013

Intraosseous access EZ-IO in a
prehospital emergency service
Journal of Emergency Nursing

2014

SEMES Congress, Málaga
252 intraosseous insertions of EZ-IO device

2017

SEMES Congress, Alicante
Evolution of the humeral IO access
with EZ-IO device SAMUR-PC 2015-2016