

Intraosseous infusion: sometimes the only way to treat severe diabetic ketoacidosis



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Background

The diabetic ketoacidosis (DKA) represents one of the most frequent causes of death in childhood. The first therapeutic step is a quick rehydration, whereby a venous access must be ensured in every child with DKA, in order to infuse liquids immediately. The children conditions (state of shock, obesity) can make access extremely difficult. We present two cases of patients with severe DKA, where finding a venous access was almost impossible.

Clinical cases

F.A., M, 18 m, and E.G., F, 3 y, arrived in our Department in coma state. Arterial sampling documented severe DKA. The children needed a venous access for their clinical conditions. After several infructuous attempts, we decided to proceed with intraosseous access. After premedication with EMLA, we inserted a needle for intraosseous injection on the level of the right tibial plate, using the Vidacare EZ-IO. The time for procedure execution was 3 minutes. The children began saline 0.9% solution and, after 1 hour, started insulin therapy and continued rehydration by marrow needle, according to a computerized protocol in use in our department. Twelve hours later, we cannulated successfully two peripheral veins and the intraosseous device was removed. There were no treatment complications.

Discussion

For critically ill patients, intraosseous access (IOA) represents a quick and fairly safe mode to ensure liquids when peripheral venous access is difficult; it could be a lifesaving procedure. By IOA, you can infuse glucosaline solutions and many drugs employed in the intensive care. The IO route can also be used to get mixed blood samples for blood tests. Intraosseous insulin is scheduled in resuscitation protocols, but not assessed in that recently proposed by ISPAD. The absorption and duration of action are the same as those obtained through a peripheral or central vein. The complications of this procedure are rather rare (0.6 per cent) The use of this procedure requires careful and continuous monitoring. IO needle should be removed as soon as the children conditions permit and, in any case, not later than 24 hours.

References

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