FURTHER INVESTIGATION INTO LOCAL COMPLICATIONS OF THIOPENTONE INJECTION

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SUMMARY

A further investigation of cases of local complications following the injection of thiopentone was undertaken. Cases which had been reported to the Medical Defence Union and to the Medical Protection Society over the six-year period 1964 to 1969 were analyzed. There were three cases of isolated damage to nerves, muscles and tendons; four cases of tissue necrosis at the site of injection and no cases of gangrene distal to the site of injection. The investigation suggests that the incidence of local complications following thiopentone injection has decreased.

An investigation into local complications of thiopentone injection has previously been carried out by the author (Davies, 1966): cases of local tissue necrosis, of damage to nerves and muscles, and of gangrene, reported to the Medical Defence Union during the seven-year period 1957 to 1963 were assessed.

A further investigation of local complications reported both to the Medical Defence Union and to the Medical Protection Society during the six-year period 1964 to 1969 has been undertaken. The complications investigated were, as before, local tissue necrosis at the site of injection, isolated damage to nerves, muscles and tendons, and gangrene developing distal to the site of injection. Brief case records are presented but, as was stated in the previous report, details are only as accurate as their drafting under a threat of litigation allow.

CASE HISTORIES

Cases developing gangrene distal to the site of injection.

No cases under this heading have been reported.

Cases of isolated damage to nerves, muscles and tendons (three cases).

CASE 1. Thiopentone (2.5 per cent solution) was injected into a vein on the back of the hand. It was estimated that 5 ml was given extravenously. Subsequently severe contracture of the extensor tendons developed. Considerable improvement in the condition eventually occurred and full recovery was anticipated.

CASE 2. Thiopentone (2.5 per cent solution) was injected into a vein in the antecubital fossa; 10 ml was given. It was thought that some of the solution had been deposited outside the vein. Subsequently there was pain and paraesthesia in the arm but complete recovery eventually occurred.

CASE 3. Thiopentone (strength of solution not known) was injected into a vein in the right antecubital fossa. This was followed by paralysis of the right hand. No further details were reported, which suggests that the paralysis was only temporary.

Cases of tissue necrosis at the site of injection (four cases).

CASE 4. Thiopentone (5 per cent solution) was injected into the antecubital fossa. Because of obesity, difficulty was experienced and some of the solution was injected extravenously. Ulceration of the skin occurred at the site of the injection.

CASE 5. Thiopentone (2.5 per cent solution) was injected via a Gordh needle into the antecubital fossa. No effect on consciousness followed the injection of 10 ml of the solution and it was ascertained that there had been leakage of solution into the tissues. Ulceration of the skin occurred at the site of the injection and the patient was left with a large scar.

CASE 6. Thiopentone (2.5 per cent solution) was injected extravenously into the tissues on the inner side of the left arm. Later the same day the left arm became painful and swollen and an abscess eventually developed at the site of the injection. The patient was left with a conspicuous scar.

CASE 7. Thiopentone (strength of solution not known) was injected into the tissues of the left forearm. Sloughing of the skin at the site of the injection followed.

DISCUSSION

The investigation covers a six-year period and consists of cases reported to the two major medical defence organizations which between them cover most medical practitioners in England and Wales. It is probable, therefore, that all the more serious complications have been reported.

local complications of thiopentone injection occurring in England and Wales during the period are included.

The total number of complications reported is small and is less than the total number reported in the previous investigation. In view of the fact that the previous investigation included cases reported to only one of the medical defence organizations, it would seem that the total incidence of the more serious complications is now much less than previously.

A complete absence of reports of gangrene occurring distal to the site of injection is noteworthy. As the number of thiopentone injections given per year in England and Wales is likely to be over one million, it would appear that more than six million thiopentone injections have been administered without a single case of gangrene resulting. This serious complication must now be extremely rare.

Only three cases of isolated damage to nerves, muscles and tendons were reported, and apparently none was very serious.

Four cases of tissue necrosis at the site of injection were reported, two in the antecubital fossa and two elsewhere on the arm. It is interesting to note that not one case of local tissue necrosis after injection into the dorsum of the hand was reported, whereas in the previous investigation half of the ten cases of local necrosis reported occurred at this site.

ACKNOWLEDGEMENTS

The author is most grateful to Dr Philip H. Addison of the Medical Defence Union and to Dr J. Leahy Taylor of the Medical Protection Society for supplying the details of the cases.

REFERENCE


OBSTETRIC ANAESTHETISTS ASSOCIATION

A meeting of the Association will be held at the University Hospital of Wales, Heath Park, Cardiff, on Friday, September 17, 1971. There will be one session on "Resuscitation of the Newborn" and another of free papers (10–15 min). Summaries of papers for either session should be submitted not later than August 1, 1971, to: Dr M. Rosen, Department of Anaesthetics, Royal Infirmary, Cardiff CF2 1SZ.