CONDITIONS FOR TRACHEAL INTUBATION FOLLOWING FAZADINUM AND PANCURONIUM

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SUMMARY

Intubating conditions were studied in two groups of patients who received either fazadinum 1 mg/kg or pancuronium 0.1 mg/kg (group 1), or either fazadinum 0.5 mg/kg or pancuronium 0.08 mg/kg (group 2). In group 1 intubating conditions were studied at 30, 45, 60 and 75 s after injection of the relaxant drug, and in group 2 at 60 s after injection. Fazadinum provided better intubating conditions than pancuronium during the first 60 s after administration in group 1 ($P<0.01$). In group 2 there was no significant difference between the conditions provided by the two drugs.

It is common practice to administer suxamethonium to facilitate tracheal intubation, followed by a long-acting non-depolarizing neuromuscular blocking drug. This sequence has several disadvantages. Two drugs are required and the various side-effects of suxamethonium, such as an increase in plasma potassium concentration, muscle pains after operation and occasional prolonged action associated with abnormal pseudocholinesterase, may be unacceptable.

Intubation of patients who have received tubocurarine (dtc) is possible, but the conditions are often far from ideal. Buckley and his colleagues (1974) investigating the relative potencies of fazadinium and dtc considered that, for a 70-kg man, an intubating dose of 1 mg/kg of fazadinium was equivalent to a dose of 36.8 mg of dtc. Doses of dtc of this magnitude may be associated with unacceptable arterial hypotension (Wylie and Churchill-Davidson, 1972). Pancuronium and fazadinium are rapidly acting non-depolarizing drugs (Harrison, 1972; Blogg et al., 1973) which have minimal actions on the cardiovascular system, and in the patient in whom the need for prolonged neuromuscular blockade is anticipated they may be the drug of choice for intubation also. However, where rapid intubation is the prime consideration suxamethonium is still superior to pancuronium and fazadinium (Harrison, 1972; Young, Clarke and Dundee, 1975).

However, it is not clear whether there is any difference between pancuronium and fazadinium.

Lyons and Clarke (1972) studied intubating conditions in cardiac patients who had received either pancuronium or fazadinium but did not attempt intubation until about 6 min after administration of the drugs. This is not usual practice, and we report here a study of the intubating conditions produced by pancuronium and fazadinium at intervals from 30 to 75 s after administration of the drug.

PATIENTS AND METHODS

One hundred patients (physical status grades I–III of the American Society of Anesthesiologists (1963) classification of physical fitness) were allocated randomly to receive either fazadinium 1 mg/kg or pancuronium 0.1 mg/kg (group 1) or fazadinium 0.5 mg/kg, or pancuronium 0.08 mg/kg (group 2).

Premedication was with papaveretum 0.3 mg/kg and hyoscine 0.06 mg/kg, and anaesthesia was induced with thiopentone 5 mg/kg and was followed immediately by injection of fazadinium or pancuronium into an indwelling needle on the dorsum of the hand. Intubating conditions in the patients in group 1 were studied at 30, 45, 60 and 75 s after the mid-point of injection of the relaxant. In the patients in group 2, intubating conditions were assessed at 60 s only. Jaw relaxation, cord relaxation and reaction to intubation were recorded after the scheme used by Young, Clarke and Dundee (1975). This is a modification of the classification of Lund and Stovner (1970).

Relaxant dosage

Group 1. The doses of fazadinium and pancuronium chosen were the highest recommended by the manufacturers on the accompanying data cards. Also, the ease with which doses could be calculated...
using the formulae 0.1 mg/kg or 1 mg/kg would indicate that these would be the doses most likely to be employed in clinical practice.

Group 2. The dose of fazadinium (0.5 mg/kg) was at the lowest end of the dose range recommended by Blogg and his colleagues (1973) and was also the lower dose recommended by the manufacturers.

The results were analysed using the Chi-squared test.

RESULTS

Intubation was possible in all patients at the stated time, but conditions varied as described below. After statistical analysis the data on the three aspects of intubation studied were converted into percentages (tables I and II). Fazadinium provided a statistically significant improvement in cord relaxation when compared with pancuronium at 30 s and 60 s (P<0.01), but not at either 45 or 75 s. Reaction to intubation (P<0.01) was significantly improved also at 30, 45 and 60 s when using fazadinium. There were no statistically significant differences in jaw relaxation at any of the study times when using either fazadinium or pancuronium. The results from the second group of patients (table II) show no statistically significant differences between fazadinium and pancuronium.

DISCUSSION

Fazadinium 1 mg/kg provides better intubating conditions during the first minute after administration compared with pancuronium 0.1 mg/kg. However, neither drug acts as rapidly as does suxamethonium (Harrison, 1972; Young, Clarke and Dundee, 1975). Therefore, in obstetric and other emergency practice suxamethonium remains the drug of choice. These situations apart, comparing tubocurarine and pancuronium against fazadinium, the last drug produces conditions for intubation which are the closest to those encountered after suxamethonium.

Neostigmine has been used successfully to antagonize the neuromuscular blockade induced by fazadinium over a wide dose range. Cane and Sinclair (1976) used fazadinium in a dose of 1 mg/kg, Coleman and his colleagues (1973) used doses of 1.5 mg/kg and more and Arora and his colleagues (1973) used doses ranging from 1.04 mg/kg to 1.31 mg/kg. All these workers reported prompt antagonism of the action of fazadinium in most cases, and our experiences with the drug lead us to concur with their views. Buckley and colleagues (1974) concluded that the action of fazadinium was antagonized as easily as that of dtc, and from the studies of Monks (1972) it can be inferred that fazadinium is likely to be antagonized more easily than either pancuronium or gallamine.

The cardiovascular actions of fazadinium have been investigated over the dose range 0.5–1.0 mg/kg (Sawege et al., 1973; Lyons, Clarke and Young, 1975; Cane and Sinclair, 1976). It is concluded that arterial pressure is maintained, despite mild ganglionic blockade, as a result of compensatory tachycardia.
Fazadinium 0.05 mg/kg is suitable for procedures lasting about 20 min, but does not provide better intubating conditions than does pancuronium 0.08 mg/kg.

Anaesthetists who use suxamethonium commonly for intubation followed by either tubocurarine or pancuronium may like to consider fazadinium as an alternative to these combinations. The advantages are that only one drug is required, the unwanted effects of suxamethonium are avoided, neuromuscular blockade is easily antagonized with neostigmine (Buckley et al., 1974) and fazadinium provides conditions of cardiovascular stability similar to those of pancuronium.

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REFERENCES


CONDITIONS D'INTUBATION TRACHEALE APRES L'ADMINISTRATION DE FAZADINIUM ET DE PANCURONIUM

RESUME

On a étudié les conditions d'intubation sur deux groupes de malades auxquels il avait été administré soit du fazadinium à raison de 1 mg/kg ou du pancuronium à la dose de 0,1 mg/kg (groupe 1) soit du fazadinium à raison de 0,5 mg/kg ou du pancuronium à la dose de 0,08 mg/kg (groupe 2). L'auteur a étudié les conditions d'intubation du groupe 1 après une période de 30, 45, 60 et 75 s après l'injection du produit décontracturant et celles du groupe 2, 60 s après l'injection. Dans le groupe 1, le fazadinium a donné de meilleures conditions d'intubation que le pancuronium au cours des 60 premières secondes qui ont suivi l'administration (P<0,01). Dans le groupe 2, on n'a remarqué aucune différence importante entre les conditions provoquées par les deux produits.

BEDINGUNGEN FÜR TRACHEALE INTUBATION NACH FAZADINIUM UND PANCURONIUM

ZUSAMMENFASSUNG

Die Intubierungsbedingungen wurden bei zwei Gruppen von Patienten studiert, die entweder 1 mg/kg Fazadinium oder 0,1 mg/kg Pancuronium erhielten (Gruppe 1), bezw. 0,5 mg/kg Fazadinium oder 0,08 mg/kg Pancuronium (Gruppe 2). Bei Gruppe 1 wurden die Intubierungsbedingungen nach 30, 45, 60 und 75 Sekunden nach der Injektion der Droge studiert, in Gruppe 2 nur nach 60 Sekunden. In Gruppe 1 bot Fazadinium bessere Bedingungen als Pancuronium während der ersten 60 Sekunden nach der Verabreichung (P<0,01). Bei Gruppe 2 gabe es keine wesentlichen Unterschiede zwischen den durch die beiden Drogen geschaffenen Bedingungen.

CONDICIONES PARA LA INTUBACION TRAQUEAL CONSECUTIVA A FAZADINIUM Y PANCURONIO

SUMARIO

Se estudiaron en dos grupos de pacientes las condiciones para la intubación, consecutiva a la administracion de fazadinium 1 mg/kg o pancuronio 0,1 mg/kg (grupo 1), o bien fazadinium 0,5 mg/kg o pancuronio 0,08 mg/kg (grupo 2). En el grupo 1 las condiciones para intubación fueron estudiadas a los 30, 45, 60 y 75 s tras la inyección del relajante, y en el grupo 2 a los 60 s tras la inyección. El fazadinium proporcionó mejores condiciones intubantes que el pancuronio durante los primeros 60 s tras la administración en el grupo 1 (P<0,01). En el grupo 2 no hubo diferencias significativas entre las condiciones intubantes aportadas por los dos fármacos.