Introduction

Propofol is an alkyl phenol derivatives (2, 6 di-isopropyl-phenol). Only slightly soluble in water and commercially present as an aqueous emulsion: containing propofol (10mg/ml), glycerol (100mg/ml), soya bean oil (22.5 mg/ml), egg lecithin (12mg/ml) and sodium hydroxide to adjust PH. (Branson and Gross, 1994).

Propofol is non barbiturate and relatively non cumulative intravenous anesthetic agent with rapid onset and recovery. It produce smooth induction with possibility of maintenance by intermittent injection (Muir, Hubell, Bednarski and Sharda, 2007).

The effects of propofol are similar to that of Sodium Pentothal. It provides no analgesia. Yet in some studies, when patients receive propofol compared to inhalation agents for anesthesia, post-operative pain is less after propofol.

Propofol is a potent hypnotic currently formulated as oil in water emulsion. Propofol is a short acting, rapidly metabolized intravenous agent characterized in man by virtual lack of any cumulative effect and by rapid recovery after its administration in a bolus dose or by continuous infusion (Branson and Gross, 1994).

Propofol is highly protein bound in vivo and is metabolized by conjugation in the liver. Its rate of clearance exceeds hepatic blood flow, suggesting an extra-hepatic site of elimination and it has several mechanisms
of action, (Vanlersberghe and Camu, 2008) both through potentiation of GABA-A receptor activity, thereby slowing the channel closing time, (Krasowski, Hong, Hopfinger and Harrison, 2002) and also acting as a sodium channel blocker (Haeseler and Leuwer, 2003 and Haeseler, Karst, Foadi, Gudehus, Roeder, Hecker, Dengler and Leuwer, 2008).

Recent research has also suggested the endocannabinoid system may contribute significantly to propofol's anesthetic action and to its unique properties. (Fowler, 2004)

The elimination half-life of propofol has been estimated to be between 2–24 hours. However, its duration of clinical effect is much shorter because propofol is rapidly distributed into peripheral tissues. When used for IV sedation propofol typically wears off in minutes. Propofol is versatile; the drug can be given for short or prolonged sedation as well as for general anesthesia. Its use is not associated with nausea as is often seen with opioid medications. These characteristics of rapid onset and recovery along with its amnestic effects (loss of memory) have led to its widespread use for sedation and anesthesia (Veselis, Reinsel, Feshchenko, & Wroński, 1997). In addition to the hypotension (mainly through vasodilatation) and transient apnea following induction doses, there is one of propofol most frequent side effect which is pain on injection, especially in smaller veins. This pain can be mitigated by pre-treatment with lidocaine. Patients tend to show great variability in their response to propofol, at times showing profound sedation with small doses.
Another recently described rare, but serious, side effect is propofol infusion syndrome. This potentially lethal metabolic derangement has been reported in critically-ill patients after a prolonged infusion of high-dose of propofol in combination with catecholamines and/or corticosteroids. (Vasile, Rasulo, Candiani and Latronico, 2003).

The use of other drugs as ketamine in combination with propofol to overcome the side effects of propofol (Cardiovascular and respiratory depression), Flaherty, Reid, Welsh, Monteiro and Nolan, 1997.

The combination of propofol with alpha-2 agonist (xylazine or detomidine) in equine produce satisfactory anesthesia with excellent induction, muscle relaxation and smooth recovery (Mama, Steffey and Pascoe, 1995 and Matthewes and Van-Dijk, 2004).

The use of propofol does have certain limitation; these include development of adverse effects such as apnea, systemic hypotension, pain on injection. El-Sayad, 2006.

Chloral hydrate is the most common intravenous drug for equine in our field practice, but using it alone was unsuitable for more than one reason such as poor analgesic effect and exhaustion of liver enzyme due to metabolism of chloral hydrate by conjugation in liver. Therefore, its combination with other anesthetic agents as propofol is advisable (El-Sayad, 2006).
Donkeys don’t respond similarly to horses when anaesthetized with the same drugs as thought. Physiologically, donkeys have different fluid balance and partitioning of fluids than do horses. Differences in drug kinetics as well as behavioral differences between donkeys and horses seem to make it difficult to find the optional field anesthetic. (Matthewes and Van-Dijk, 2004)

Our study aimed to throw a light on some regimen of anesthesia by using propofol alone or in combination with some anesthetic drugs (such as xylazine, chloral hydrate, ketamine and thiopental sodium). The action of each of them on donkeys was reported to select the most suitable protocol or protocols that considered useful for surgical interferences.