4CPS-145 ATC: N01- ANESTHETICS

COLLABORATIVE IMPLEMENTATION OF 'WALANT' (LOCAL ANESTHETIC) TECHNIQUE IN A HAND SURGERY WARD

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Background and importance

The **WALANT (Wide-Awake Local Anesthesia No Tourniquet)** technique is an alternative approach in certain hand- and upper extremity surgery procedures, that utilizes a **combination of local anesthetic and hemostatic agent** to replace traditional general anesthesia and tourniquet application, making procedures **time-saving, cost-effective and also enables faster recovery.** To meet these expectations, a request for developing an adapted formulation of WALANT solution arrived from Hand Surgery Department.

Aim and objectives

Our aim was to **designate the obtainable and suitable pharmaceutical products** serving as the basis of the WALANT solution. Also, we aimed to **design a practical and visually comprehensible dosage guide (in table form),** as well as to reply to various professional questions that may arise (duration of action, shelf life, side effects, etc.).

ADVANTAGES:

- cost effective- and time saving
- can be performed as same-day surgery
- continuous monitoring of mobility function

- patient education can be performed during surgery
- cuff-caused pain and time constraints can be avoided
- no need for fasting or modification of drug therapy
- side effects and risks of general anesthesia can be avoided

Material and methods

An **adapted formulation was developed,** relying on international recommendations and extensive literature research, considering professional and economic issues, harmonizing different measurement units. The dosage guide was compiled in accordance with the instructions provided by SPCs, in two effective concentrations of various commercially available products.

Results I.

The local concentration of hemostatic **adrenaline solution** was determined to be 0.005% (**1:200,000** ratio for **adults**). **For children and cardiology patients,** exceeding a 0.0025% (**1:400,000**) local adrenaline concentration is not recommended; therefore, our dosage table includes the formula of diluted solution as well. As for the local anesthetic, **lidocaine** was used in **1%** concentration. Chemical stability of the solution was ensured by adding **sodium bicarbonate (0.84%)**. The appropriate amount of **normal (0.9%) saline solution** was used for dilution, depending on the desired total volume (10-30 ml).

WALANT Dosage guide for children and cardiology patients

ADRENALINE 1 : 400 000					Concentration and quantity		
10 ml solution	ADRENALINE 1mg/ml 1 ml inj.	LIDOCAINE 20 mg/ml inj. 10x10ml amp	SODIUM-BICARBONATE 84 mg/ml inj.	SODIUM CHLORIDE 0.9% inj.	adrenaline in 10 ml solution	lidocaine in 10 ml solution	bicarbonate in 10 ml solution
injection volume	0.025 ml	5 ml	1 ml	4 ml	0.025 mg = 0.0025% = 1 : 400 000	100 mg = 1% = 1 : 100	84 mg = 0.84% = 1 : 119
20 ml solution	ADRENALINE 1mg/ml 1 ml inj.	LIDOCAINE 20 mg/ml inj. 10x10ml amp	SODIUM-BICARBONATE 84 mg/ml inj.	SODIUM CHLORIDE 0.9% inj.	adrenaline in 20 ml solution	lidocaine in 20 ml solution	bicarbonate in 20 ml solution
injection volume	0.05 ml	10 ml	2 ml	8 ml	0.05 mg = 0.0025% = 1 : 400 000	200 mg = 1% = 1 : 100	168 mg = 0.84% = 1 : 119
30 ml solution	ADRENALINE 1mg/ml 1 ml inj.	LIDOCAINE 20 mg/ml inj. 10x10ml amp	SODIUM-BICARBONATE 84 mg/ml inj.	SODIUM CHLORIDE 0.9% inj.	adrenaline in 30 ml solution	lidocaine in 30 ml solution	bicarbonate in 30 ml solution
injection volume	0.075 ml	15 ml	3 ml	12 ml	0.075 mg = 0.0025% = 1 : 400 000	300 mg = 1% = 1 : 100	252 mg = 0.84% = 1 : 119

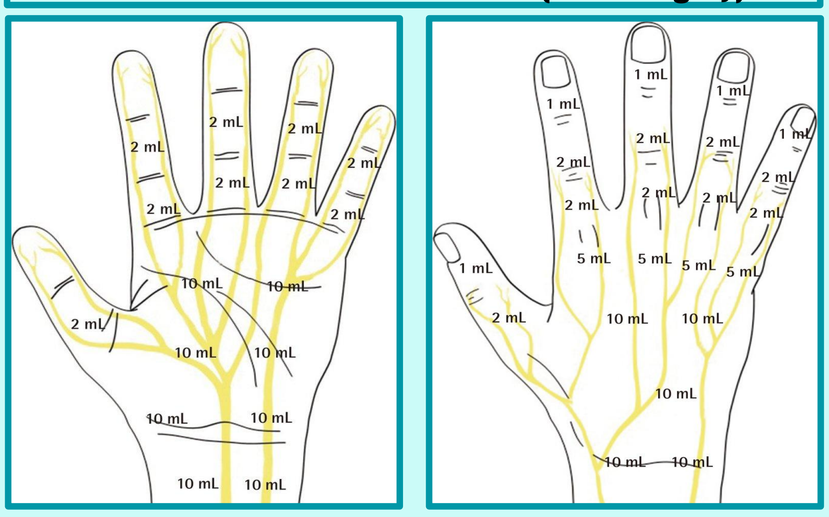
Results II.

After 'in situ' preparation of WALANT solution by physicians, **opened ampules were advised to be discarded,** due to concerns of microbiological stability, labeling and storage safety. Hand Surgery Department **specialists were educated on potential adverse drug reactions** and management. The **workload of the anesthetic team** has been considerably **reduced** by approximately 30-40%, which has had good impact on human resource capacities and cost-effectivity as well.

Procedures suitable for WALANT technique

- Fracture reconstructions
- Fractures at the distal end of the radius
- Plating
- Metal removal
- Flexor tendon repairs, restoration
- Fusion surgeries of the small joints
- MCP joint collateral ligament ruptures
- Trapeziectomy

Desired volumes of WALANT solution (hand surgery)



Conclusion and relevance

The introduction of WALANT technique has had a **beneficial effect on cost-effectivity while maintaining patient safety.** This successful collaboration **strengthened the professional relationship and trust** between the Hand Surgery Department and Hospital Pharmacy.

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