

CONTENTS

Introduction	1
Aim of the work	4
Anatomical review	5
Physiological review	27
Postoperative pain	37
Assessment of pain	42
Epidural review	53
Pharmacological review	85
Patients and methods	119
Results	129
Discussion	167
Summary and conclusion	193
References	200
Arabic summary	-

List of Tables

Table No.	Title	Page
Table (1)	Methods of treating postoperative pain.	40
Table (2)	Principles of successful pain assessment.	42
Table (3)	Level of catheter insertion in regard to the site of the surgery.	67
Table (4)	Ramsay sedation scale.	126
Table (5)	Comparison among three groups according to age, BW, HT, and ASA physical status.	129
Table (6)	Comparison among three groups according to sex.	129
Table (7)	Comparison among three groups according to SBP.	130
Table (8)	Comparison among three groups according to DBP.	133
Table (9)	Comparison among three groups according to HR.	136
Table (10)	Comparison among three groups according to RR.	139
Table (11)	Comparison among three groups according to pH.	142
Table (12)	Comparison among three groups according to PaO ₂ .	145
Table (13)	Comparison among three groups according to PaCO ₂ .	148
Table (14)	Comparison among three groups according to HCO ₃ .	151
Table (15)	Comparison among three groups according to VAS.	154
Table (16)	Comparison among three groups according to VRS.	157
Table (17)	Comparison among three groups according to RSS.	160
Table (18)	Comparison among three groups according to complications.	163

List of Figures

Figure No.	Title	Page
Fig. (1)	Anatomy of thoracic vertebra and rib.	5
Fig. (2)	Anatomy of the thoracic cage.	6
Fig. (3)	Diagram of thoracic spine.	10
Fig. (4)	Surface anatomical landmarks of the spines.	11
Fig. (5)	Content of spinal canal (lateral view).	22
Fig. (6)	Content of spinal canal (cross section).	22
Fig. (7)	Diagram of pain pathway.	27
Fig. (8)	Dorsal horn connections inputs and outputs.	32
Fig. (9)	Mechanism of peripheral sensitization.	35
Fig. (10)	Pain mediators.	36
Fig. (11)	Pain assessment scales.	45
Fig. (12)	Choice of pain assessment tools.	46
Fig. (13)	Loss of resistance identifies the epidural space.	65
Fig. (14)	The approaches of the epidural needle.	68
Fig. (15)	Positioning the catheter in the epidural space.	69
Fig. (16)	Epidural catheter placement.	70
Fig. (17)	Gastro-intestinal motility.	83
Fig. (18)	Bupivacaine hydrochloride structural formula.	85
Fig. (19)	Structural formula of fentanyl.	94
Fig. (20)	Chemical structure and formula of neostigmine.	107

Fig. (21)	The epidural needle angle.	121
Fig. (22)	Comparison among three groups according to SBP.	132
Fig. (23)	Comparison among three groups according to DBP.	135
Fig. (24)	Comparison among three groups according to HR.	138
Fig. (25)	Comparison among three groups according to RR.	141
Fig. (26)	Comparison among three groups according to pH.	144
Fig. (27)	Comparison among three groups according to PaO ₂ .	147
Fig. (28)	Comparison among three groups according to PaCO ₂ .	150
Fig. (29)	Comparison among three groups according to HCO ₃ .	153
Fig. (30)	Comparison among three groups according to VAS.	156
Fig. (31)	Comparison among three groups according to VRS.	159
Fig. (32)	Comparison among three groups according to RSS.	162
Fig. (33)	Comparison among three groups according to complications.	164