

AUTONOMIC NERVOUS SYSTEM

FUNCTION:

fylogenetically the oldest part of NS, control **smooth muscles, glands, heart**

FUNCTIONAL DIVISIONS:

Parasympaticus – anabolic reactions (store the energy)

Sympaticus – catabolic function (release the energy)

Enteric system

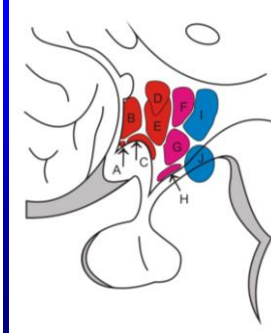
MORPOLOGICAL DIVISIONS:

Central

Peripheral

CENTRAL PART OF AUTONOMIC NERVOUS SYSTEM

Hypothalamus (subsystem of limbic brain = visceral brain)



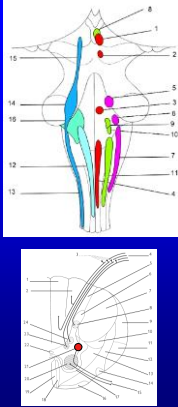
Ncl. hypothalamici ant.
control **parasympaticus**
(fasciculus longitudinalis dorsalis)

Ncl. hypothalamici medii
Control the **sympaticus**
(over RF, tr. tegmentalis centralis)

PARASYMPATICUS (cranio-sacral system)

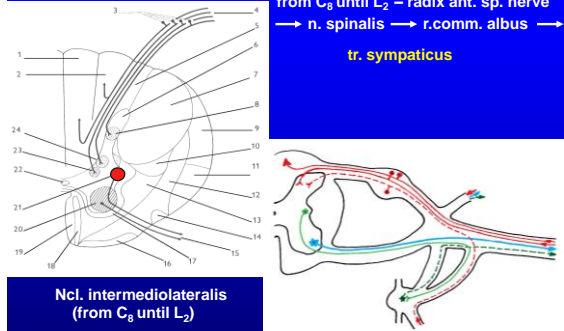
- Ncl. parasympaticus n. III.**
(ggl. ciliare)
- Ncl. parasympaticus n. VII.**
(ggl. pterygopalatinum, ggl. submandibulare)
- Ncl. parasympaticus n. IX.**
(ggl. oticum)
- Ncl. parasympaticus n. X**
(organs of neck, thorax, abdominal – until flexura coli sinistra!!!, genital glands)

Sacral segments of spinal cord (S2-4), ncl. intermediolateralis
(organs of pelvis except of genital glands)



SYMPATICUS - system (cervico)-thoraco-lumbar

from C₈ until L₂ – radix ant. sp. nerve
→ n. spinalis → r. comm. albus →
tr. sympaticus



Ncl. intermediolateralis
(from C₈ until L₂)

TRUNCUS SYMPATICUS

ganglia trunci sympatici (paravertebral)

cervicalia 3 (sup., med., inf.)

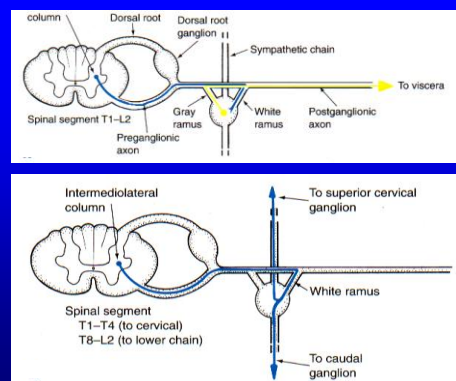
thoracica 10-11

lumbalia 4-5

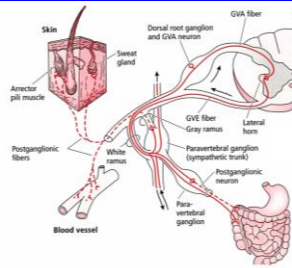
sacralia 4-5

ganglion impar

rami interganglionares



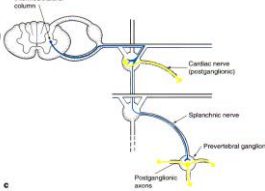
GANGLION TRUNCI SYMPATICI – eferent fibres



To the organs:

rr. viscerales
(postganglionic fibres)

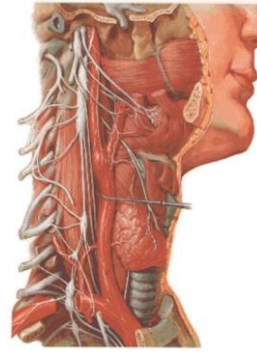
nn. splanchnici
(praeganglionic fibres,
praevertebral and intramural
plexus)



rr.comm. grisei
(to the n. spinalis - skin)

rr. vasculares (net around the arteries)

PARS CERVICALIS PARTIS SYMPATICAE



Ganglion cervicale superius

rr. comm. grisei - nn. spinales C₁ -C₄
n. jugularis (n.IX.,n.X.)
rr. vasculares - n. caroticus int., ext.
rr. viscerales - rr. laryngopharyngei
n. cardiacus cervic.sup.

Ganglion cervicale medium

rr. comm. grisei - nn. spinales C₅ -C₆
rr. vasculares - pl. caroticus comm.
rr. viscerales - gl. thyroidea, ggl. parathyroidae
n. cardiacus cervic.med.

Ganglion cervicale inferius

rr. comm. grisei - nn. spinales C₆ -C₇
rr. vasculares - pl. subclavius
rr. viscerales - gl. thyroidea, ggl. parathyroidae
n. cardiacus cervic.inf.

PARS THORACICA PARTIS SYMPATICAE



rr. comm. grisei
to all intercostal nerves

rr. vasculares
plexus aorticus thoracicus

rr. viscerales
nn. cardiaci thoracici
(plexus cardiacus spf., prof.)

rr. pulmonales (plexus pulmonalis)

rr. oesophagei (plexus oesophageus)

nn. splanchnici
n. splanchnicus major Th₆₋₉ (pl. coeliacus)
n. splanchnicus minor Th₁₀₋₁₁
(pl. coeliacus, pl. renalis)
n. splanchnicus imus Th₁₂ (plexus renalis)

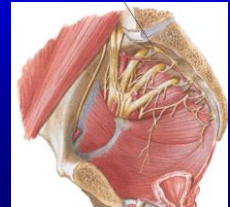
PARS ABDOMINALIS ET PELVINA PARTIS SYMPATICAE



rr. comm. grisei
to all spinal nerves from L, S
and Co segments

nn. splanchnici lumbales
(to plexus aorticus abdominalis)

nn. splanchnici sacrales
(to plexus hypogastricus)



PRAEVERTEBRAL PLEXUSES – THORAX

Plexus cardiacus spf., prof.

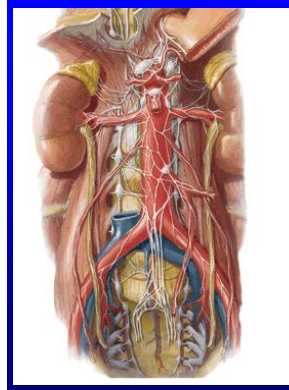
Plexus aorticus thoracicus

Plexus pulmonalis

Plexus oesophageus



PRAEVERTEBRAL PLEXUSES – ABDOMINAL CAVITY



Plexus aorticus abdominalis

Plexus coeliacus
(ggl. coeliacum dx. sin.)
plexus gastrici
plexus lienalis
plexus hepaticus
plexus duodenalis
plexus pancreaticus

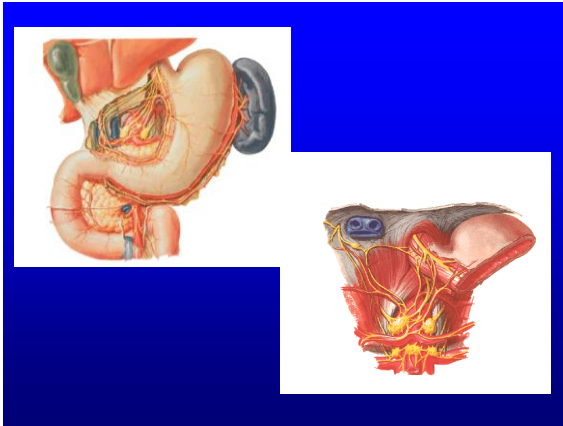
Plexus mesentericus superior

Plexus mesentericus inferior

Plexus renalis et suprarenalis
(plexus uretericus)

Plexus testicularis (ovaricus)

Plexus iliaci (plexus femoralis)



PRAEVERTEBRAL PLEXUSES – PELVIS

Plexus hypogastricus superior
(n. praesacralis)

Plexus hypogastricus dx. a sin.

Plexus hypogastricus inf.

Innervation of Male Reproductive Organs
Schema

Sympathetic fibers
— Parasympathetic

Parasympathetic fibers
— Sympathetic

PLEXUS CERVICALIS

rami ventrales nervorum spinalium C₁ – C₄ (C₅)

THREE LOOPS (ansae)

Branches:

- sensoric**
- motor**

PLEXUS CERVICALIS – SENSORIC BRANCHES

Nervus occipitalis minor

Nervus auricularis magnus
ramus anterior
ramus posterior

Nervus transversus colli
(connected withr. colli n. VII
ansa cervicalis superf.)

Nervi supraclaviculares
mediales
intermedii
laterales

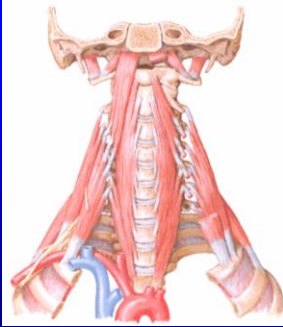
PLEXUS CERVICALIS – MOTOR BRANCHES

Rami musculares

Ansa cervicalis profunda

Nervus phrenicus
(less sensoric fibres)

PLEXUS CERVICALIS – MOTOR BRANCHES



Rami musculares

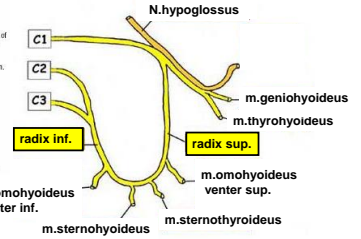
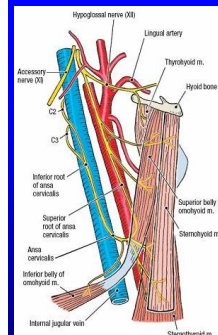
- mm. praevertebrales
- mm. intervertebrales
- mm. scaleni

partly:

- m. sternocleidomastoideus
- m. trapezius

ANSA CERVICALIS PROFUNDA

Radix superior ansae cervicalis prof. (accompanies nervus XII.)
Radix inferior ansae cervicalis prof.



NERVUS PHRENICUS

- rr. phrenici (motor.)
- rr. pericardiaci (sen.)
- rr. phrenicoabdominales (sen.)

