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बालरोग सामान्य चिकित्सासूत्र

दोषदूष्यमलाश्चैव महतां व्याधयश्च ये ॥

त एव सर्वे बालानां मात्रा त्वल्पतरा मता । निवृत्तिर्वमनादीनां मृदुत्वं परतन्त्रताम् ॥

वाक् चेष्टयोरसामर्थ्यं वीक्ष्य बालेषु शास्त्रवित् । भेषजं स्वल्पमात्रं तु यथाव्याधि प्रयोजयेत् ॥

मधुराणि कषायाणि क्षीरवन्ति मृदूनि च । प्रयोजयेद् भिषग्बाले मतिमानप्रमादतः ॥

अत्यर्थस्निग्धरूक्षोष्णमम्लं कटुविपाकि च । गुरु चौषधपानान्नमेतद्बालेषु गर्हितम् ॥

समासात् सर्वरोगाणामेतद्बालेषु भेषजम् । निर्दिष्टं शास्त्रविद्वैद्यः प्रविविच्य प्रयोजयेत् ॥

(च,चि,३०/२८२-२८७)

Dosha, Doosha and Malas and also the disorders which are in adults are entirely the same in children with only difference that their quantity is less.

Emesis etc. are avoided in children looking to their delicacy, dependence on others and incapability in respect of speech and movements. The learned physician should administer drugs to children in smaller dose according to disease and mostly sweet, astringent, with latex and soft ones cautiously.

Excessively unctuous, rough, hot, sour, pungent in Vipaka and heavy drugs, food and drugs are contra-indicated for children.

Thus treatment of all diseases of children have been mentioned in brief which should be applied by the learned physician after consideration.

औषधि मात्रा निर्धारण

MATRA is an important factor, that should be considered while discussing the treatment schedule, especially in the case of a child.

Factors to be considered:

- a)Age & Strength of the child
- b)Kalpana & Drug nature
- c)Intensity of the disease
- d)Aim of treatment(Sodhana/Samana)

चरक

भेषजं स्वल्पमात्रं तु यथाव्याधि प्रयोजयेत् ॥

मधुराणि कषायाणि क्षीरवन्ति मृदूनि च ।

प्रयोजयेद् भिषग्बाले मतिमानप्रमादतः ॥ (च.चि.३०/२८४-२८५)

physician should administer drugs to children in smaller dose according to disease and mostly sweet, astringent, with latex and soft ones cautiously.

सुश्रुत

तत्र मासादूर्ध्वं क्षीरपायाङ्गुलिपर्वद्वयग्रहणसम्मितामौषधमात्रां विदध्यात् ।

कोलास्थिसम्मितां कल्कमात्रंक्षीरन्नादाय, कोलसम्मितामन्नादायेति ॥ (सु.शा.१०/३८)

For the child which drinks only milk, after month the quantity of medicine should be that which adheres of the finger; for Ksheerannada the dose of medicine made as paste shall be of the size of the seed of kola; for Annada the dose of medicine shall be of the size of kola.

तत्रोत्तरोत्तरासु वयोवस्थासूत्तरोत्तरा भेषजमात्राविशेषा भवन्ति, ऋते च परिहाणेः, तत्राध्यापेक्षया प्रतिकुर्वीत। (सु.सू.३५/३०)

The dose of medicine to be administered in the succeeding ages should be increasing quantity, except in pariharini; during that period the dose should be same as of the first period.

काषप

विडग्ङफलमात्रं तु जातमात्रस्य देहिनः ।

भेषजं मधुसर्पिभ्यां मतिमानुपकल्पयेत् ॥

वर्धमानस्य तु शिशोर्मासे विवर्धयेत् ॥ (का.सू.लेह.पृ.३)

To the new born child, the drug should be prescribed in the quantity equal to a fruit of Vidanga with honey and Ghrita. To the growing child, it should be increased every month gradually by the expert.in no case, the wise physician should increase it more than the quantity of Amalaka.

ऊनद्वादशवर्षाणां नैकान्तेनावचारयेत् ।

अवचारितमेकान्तेनाहन्यहनि चौषधम् ॥

असमत्वागतप्राणदोषधतुबलौजसाम् ।

अत्यन्तसुकुमाराणां कुमारणां बलायुषी ॥ (का.खि. ३/५८-५९)

In children of less than twelve years of age the medicine should not be used solely. Every day solely used medicine (destroys the) strength and longevity of very delicate children, having dissimilarity in (status of) life, Doshas, Dhatus, strength and Ojas.

DOSE OF GHRITA

जातमात्रस्य मात्रा स्यात् सर्पिष्कोलास्थिसम्मिता । पञ्चरात्रं भवेद्याद्दशाहमधिकं ततः ॥

कोलार्धसम्मितं यावद्विंशद्रात्रमतः परम् । कोलमात्रं भवेद्यावन्मासं मासद्वयेऽधिकम् ॥

द्विकोलसम्मितं सर्पिस्तृतीये मासि शस्यते । शुष्कामलकमात्रं तु चतुर्थे मास्युदाहृतम् ॥

पञ्चमे मासि षष्ठे च ह्यार्द्रामलकसम्मितम् । तदेवाभ्यधिकं किञ्चिद्विहितं सप्तमाष्टमे ॥

(का.खि. ३/७८-८२)

The dose of Ghrita for immediately born is equal to kernel of jujube fruit; after wards up to five or ten days it becomes slightly more, then up to twenty nights, it becomes equal to half of jujube fruit.

Till one month, it is equal to jujube fruits, in second month becomes more than this and in third month the Ghrita is equal to two jujube fruit is prised.

In fourth month, it is said to be equal to dry fruit of Amalaka; in fifth and sixth month is equal to green fruit of Amalaka. In seventh and eight month it should be more than this.

Age	Dose
New born (up to 5 days)	1 kolasti
5 – 10 days	Little more
11 – 20 days	½ kola
1 st month	1 kola
2 nd month	Little more
3 rd month	2 kola
4 th month	Dried Amalaka
5 – 6 months	Amalaka
7 – 8 months	Little more

क्षीरान्नादस्य बालस्य प्रायेणाहारसङ्करात् ।

भवत्यानियतो बन्धिः पक्तौ बह्वनिलात्मनः । तस्याऽन्यावेक्षिकी तस्मात् स्नेहमात्रा विधीयते ॥

अन्नादस्य तु भूयिष्ठं सामो भवति पावकः । तस्यामलकमात्रस्य सर्पिषः पानमिष्यते ॥

तदेवाग्निबलं वीक्ष्य वर्धमानस्य वर्धयेत् । क्षीरपस्य कुमारस्य क्षीरान्नादस्य चोभ्योः ॥

(का.खि.३/८३-८५)

The digestive fire of Ksheerannada having predominance of Vayu is irregular due to consumption of mixed diet, that is why the dose of oleaginous substances is dependent upon his Agni.

In majority of Annada, the fire is in equilibrium, to him the desired dose of Ghrita to be ingested is equal to fruit of Amalka.

Looking to strength of digestive fire, the dose should be increased in growing Ksheerapa and Ksheerannada both children.

देयं स्नेहचतुर्भगं भेषजस्य यथामयम् । घृतेन पाययेद्दालं यावत् स्यादष्टमासिकः ॥

मासादतोऽष्टमाज्जन्तोर्जलपिष्टं प्रदापयेत् । (का.खि.३/८६-८७)

Till the child is of eight months, 1/4th quantity of drug, to that of oleaginous substances according to disease should be given for drinking with Ghrita. After eight months (the drug) levigated with water should be given to children.

DOSE OF CHOORNA

मुचटिं वा प्रकुञ्चं वा प्रसृतं वाऽथवाऽञ्जलिम् । आतुरस्य प्रमाणेन समेतव्यं चिकित्सिते ॥

अग्रपर्वाङ्गुलिग्राह्या चूर्णमात्रा तु पाणिना । चूर्णानां दीपनीयानामेषा मात्रा विधीयते ॥

द्विगुणाजीवनीयानां तथा संशमनस्य च । उर्ध्वभगे त्वर्धमात्रा तथैव च विरेचने ॥

(का.खि.३/८८-९१)

In treatment according to quantum (of disease or strength) of diseased, the drug equal to fistful, one Prakunca, one Prasta or one Anjali should be given.

The dose of powders in the quantity held between fore phalanges of two fingers of hand. This dose is said to be of appetizing powders; double to this is of life prolonging and pacifying (powders) and the dose of emetics and purgatives is half of this.

Choorna	Dose
Deepaniya Choorna	1 pinch
Jeevaniya/Samshamaniya Choorna	2 pinch
Vamana/Virechana Choorna	½ pinch

Dose of kashaya

वातपित्तकफघ्नानां कषाये तु प्रदापयेत् ॥

द्वौ दापयेत् प्रसृतौ शर्करमधुसंयुतौ । प्रसृतं छर्दनीयस्य निष्काथस्य प्रदापयेत् ॥

तथा वैरेचनीयस्य प्रसृतं नात्र संशयः । द्विगुणां जीवनीयस्य तथा संशमनस्य च ॥ (का.खि.३/९१-९३)

kashaya	Dose
Dosha nashaka	(Sugar candy + honey) Choorna 2 prasruta = 192ml
Vamana / Virechana	1 prasruta = 96ml
Jeevaniya / Samshamaniya	2 prasruta = 192ml

Dose of kalka

दीपनीयस्य कल्कं तु अक्षमात्रं प्रदापयत् ।

द्विगुणां जीवनीयस्य तथा संशमनस्य च । अक्षार्धं छर्दनीयस्य तथा वैरेचिकस्य च ॥ (का.खि.३/९३-९४)

Kalka	Dose
Deepaniya	1 Aksha = 1 karsha = 12gm
Jeevaniya / Samshamaniya	2 Aksha = 2 karsha = 24gm
Vamana / Virechana	½ Aksha = ½ karsha = 6gm

योगरत्नाकर

प्रथमे मासि बालाय देय भैषज्यरक्तिका । अवलेह्य तु कर्तव्या मधुक्षीरसिताघृतैः ॥

एकैकां वर्धयेत्तावध्यावत्संवत्सरो भवेत् । तदूर्ध्वं माषवृद्धिः स्याध्यावत्षोडशवत्सराः ॥

ततः स्थिरा भवेत्तावध्यावद्द्वर्षाणि सप्ततिः । ततो बालकवन्मात्रा ह्रासनीया शनैः शनैः ॥

चूर्णकल्कावलेहानामियं मात्रा प्रकीर्तिता । कषायस्य पुनः सैव विज्ञातव्या चतुर्गुणा ॥ (Y.R)

- ▶ 1st month – 1 Ratti (Avleha, Madhu, Ksheera, Sarkara, Ghrita)
- ▶ 2nd to 12th month – increase every month by 1 Ratti
- ▶ 1 year – 12 Ratti
- ▶ Every year – increase every year by 1 Masha
- ▶ 16th year – 16 Masha

Age	Dose
1 st month	1 Ratti = 125mg (Avleha, Madhu, Ksheera, Sarkara, Ghrita)
2 nd to 12 th month	Increase every month by 1 Ratti
1 year	12 Ratti = 1.5gm
Every year	Increase every year by 1 Masha

16 th year	16 Masha
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Dose of Matra Basti

प्रकुञ्जः कन्यसी मात्रा, ततोऽधर्धा मध्यमा ॥

उत्तमा द्विपला मात्रा मात्राबस्तौ तु भर्गवः । (का.खि.८/१०४-१०५)

	Dose
अवर	1 prakuncha
मध्यम	1½ prakuncha
प्रवर	2 pala =96ml

MODERN ASPECT

DRUG DOSAGE:

- ▶ Drug plays a vital role in protecting, maintaining & restoring health of people, if used rationally.
- ▶ To produce its optimal effect, a drug must be present in an appropriate concentration at its site of action
- ▶ Concentration achieved depends on:
 - ▶ Amount of drug, extent & rate of absorption, distribution, binding or localisation in tissues, biotransformation & excretion.
 - ▶ If proper dose- not known, it must be ascertained.
 - ▶ Risk of intolerance is grave in infants
 - ▶ As per availability, experimentally determined or clinically established doses should be used
 - ▶ Fixed drug combinations should be avoided in children due to
 - ▶ A)Difficulty in administration of correct dose
 - ▶ B)Greater risk of toxicity

In general, Clarke's rule is applicable if adult dose is known:

- ▶ 1) (Weight of the child in lbs/150)*adult dose
- ▶ 2)(SA of the child in Meter square/1.8)*adult dose
- ▶ 3)SA of the child in Meter square *60= % of adult dose

- ▶ In obese children- dose per unit body weight may create problems, as they have a slow metabolic rate with reduced drug clearance
- ▶ It is recommended to calculate dose in obese children on the basis of their ideal body weight for their age

CALCULATION OF MEDICINE DOSAGE IN CHILDREN

Young's formula= $(\text{adult dose} \times \text{age in years}) / (\text{age} + 12)$

Cowling's formula= $(\text{adult dose} \times \{\text{age} + 1\}) / 24$

Dilling's formula= $(\text{adult dose} \times \text{age}) / 20$

Fried's formula= $(\text{age in months} \times \text{adult dose}) / 150$

1ml = 20 drops

DRUG DOSAGES IN PATIENTS WITH RENAL FAILURE

- ▶ Drugs may accumulate in the body due to failure of renal excretion
- ▶ Problems of safety arises especially in patients with renal failure who must be treated with drugs that are potentially toxic & which are eliminated by kidneys
- ▶ Measurement of plasma concentration of drugs is useful & desirable in patients with renal failure

ADVERSE EFFECTS OF DRUGS

- ▶ Over dose
- ▶ Intolerance
- ▶ Side-effects (eg.drowsiness)
- ▶ Secondary effects (eg.diarrhoea,vitamin deficiency)
- ▶ Hypersensitivity reactions
- ▶ GI Intolerance (eg.nausea, vomiting,abdominal pain)

- ▶ Hemolysis
- ▶ Non-urticarial skin rashes
- ▶ Drug fever
- ▶ Hepatitis & cholestatic jaundice
- ▶ Miscellaneous side effects (eg.severe hematemesis,peripheral neuritis, toxic cataract)