

TREATMENT PRACTICES, COST OF TREATMENT AND ITS IMPLICATIONS IN THE MANAGEMENT OF HYPERTENSION AT SHREE BIRENDRA HOSPITAL

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BACKGROUND

- Hypertension is the most common cardiovascular disease.
- It is also the principal cause of stroke, myocardial infarction and sudden cardiac death.
- Shree Birendra Hospital (SBH) has been giving its medical services to the army veterans, army staffs and its families.
- The treatment is free of cost to the army patients and to army families.

OBJECTIVE

- To analyze the prescription pattern and cost of therapy of hypertension (at the time of **first day** of presentation) in patients visiting OPD/emergency of SBH.

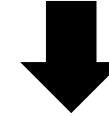
METHODOLOGY

- **Design** – Prospective observational study
- **Site** – SBH Medicine OPD/Emergency
- **Duration** – 28th April 2019 to 8th November 2019 (6 months)
- **Inclusion criteria** –
 - **Newly diagnosed** hypertensive patients of all age group **without co-morbidities**
- **Exclusion criteria** –
 - Old hypertensive patients with or without co-morbidities
 - New hypertensive patients with co-morbidities
- **Consent** – Informed written consent
- **Data collection** – Designed proforma sheet

New hypertensive patients without comorbidities taken



Data recording of BP, Investigations and prescription of DAY 1 on proforma sheet



Cost of investigations (CBC, RFT, Lipid Profile, Urine) and drugs obtained from hospital



- Categorization of patient according to JNC-8
- Type of therapy (Mono/Poly/Non-Drug)
- Cost of drugs calculated



Cost of drug calculated by –
Unit price of drug x Frequency of the dose (od/bd/tds) for DAY 1

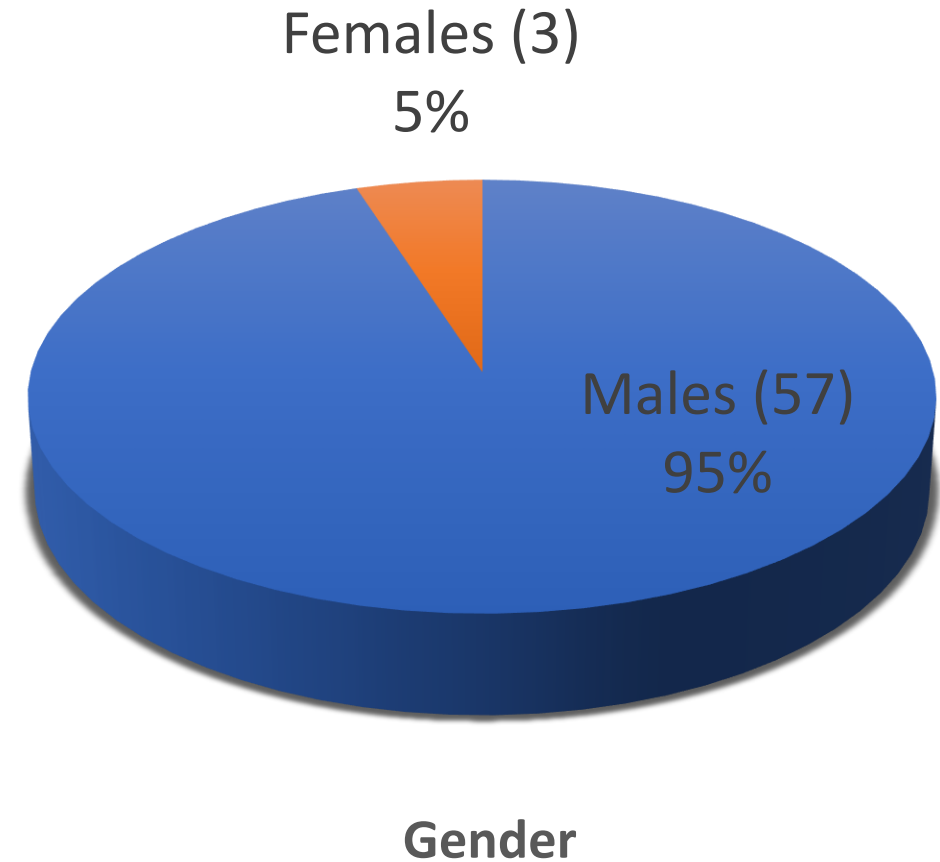
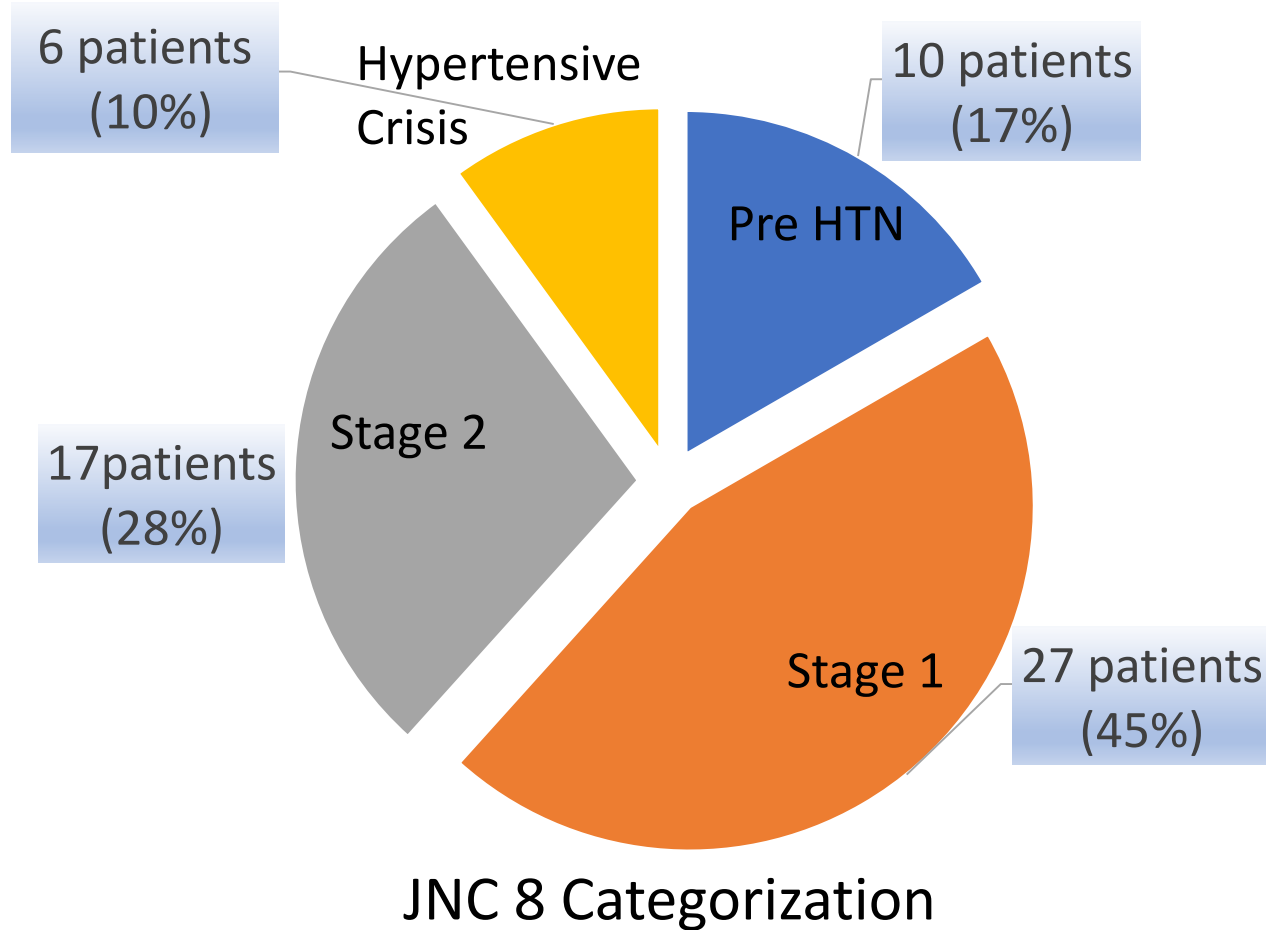


Overall cost of treatment for DAY -1 calculated by –
Cost of drug + cost of investigations

*** The cost of drug and investigations are paid by the hospital itself for the patient**

RESULTS - Demography

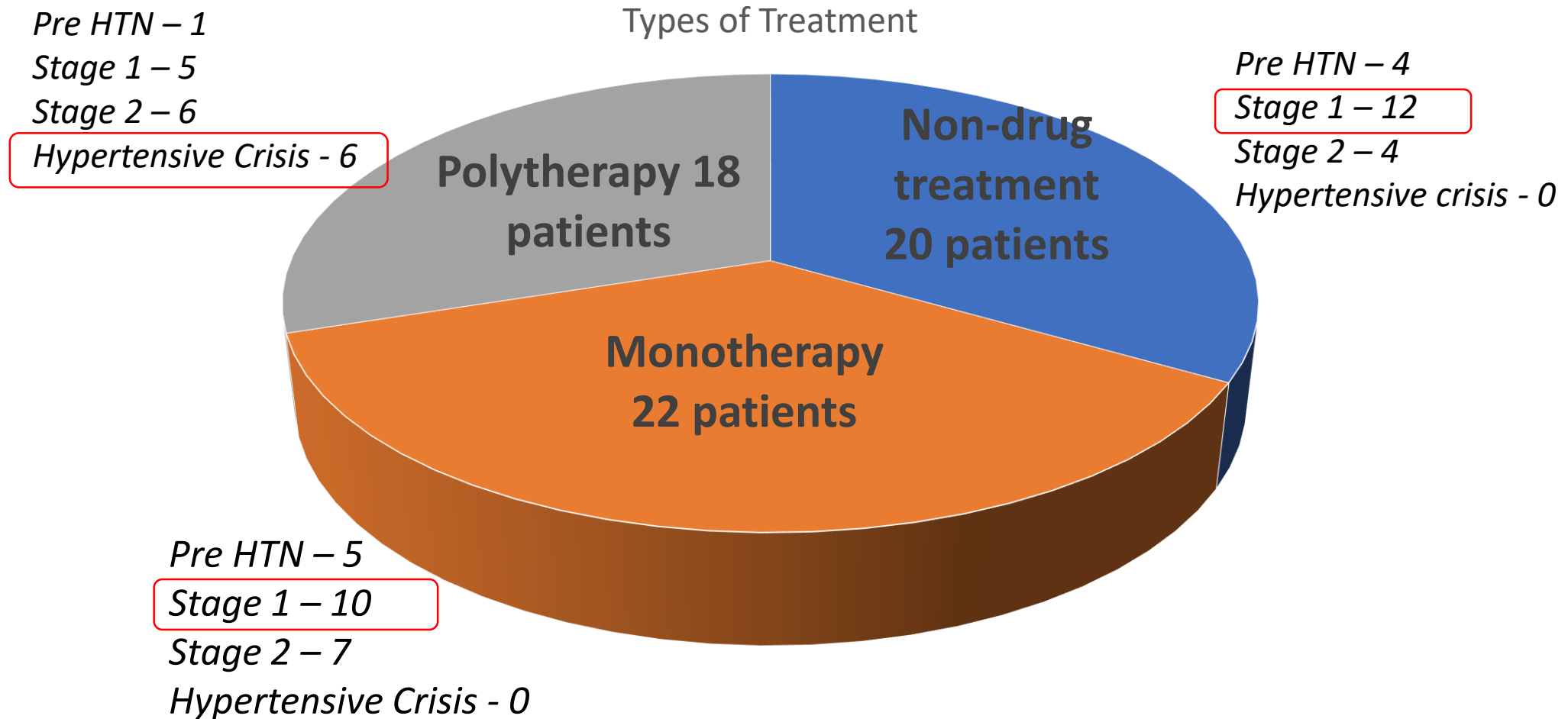
Total Patients - 60



RESULTS – Age group distribution

Age group (years)	Pre hypertension	Stage 1	Stage 2	Hypertensive crisis
31 – 35	7	17	7	-
36 – 40	2	4	6	1

RESULTS – Types of treatment



RESULTS – Drugs given as monotherapy

	AMLODIPINE	LOSARTAN	OLMESARTAN	PROPRANOLOL	ATORVASTATIN
Pre-hypertension	3	1	-	-	1
Stage 1	7	1	1	1	-
Stage 2	7	-	-	-	-
Hypertensive crisis	-	-	-	-	-

RESULTS - Drugs given as polytherapy (OPD + emergency)

Drug	Pre-hypertension	Stage 1	Stage 2	Hypertensive crisis
Amlodipine + Losartan (FDC – Fixed Dose Combination)	1	2	5	4
Losartan + Hydrochlorthiazide (FDC)	-	2	-	1
Telmisartan + Hydrchlorthiazide (FDC)	-	1	1	-
Amlodipine 10mg + Atorvastatin 40mg	-	-	-	1

RESULTS – Injectable drugs given in emergency

Drugs	Blood Pressure (mm/Hg)	Number of patients
Inj. Frusemide	220/100 200/110 200/110 180/110	4
Inj. Torsemide	220/100	1
Inj. Labetalol	220/150	1

RESULTS – Cost of treatment for DAY 1 in monotherapy (OPD)

DRUG	Per Unit cost	Cost of investigations	Total COST (per pt.)
AMLODIPINE 10mg	Rs. 0.43	Rs. 384.72	Rs. 385.15
LOSARTAN 25mg	Rs. 1.0	Rs. 384.72	Rs. 385.72
OLMESARTAN 20mg	Rs. 3.29	Rs. 384.72	Rs. 388.01
PROPRANOLOL 10mg	Rs. 0.80	Rs. 384.72	Rs. 385.52
ATORVASTATIN 20mg	Rs. 2.0	Rs. 384.72	Rs. 386.72

RESULTS – Cost of treatment for DAY 1 in Polytherapy (OPD)

FDC →	Amlodipine + Losartan	Losartan + Hydrochlorthiazide	Telmisartan + Hydrochlorthiazide
Per unit cost	Rs. 1.20	Rs. 1.29	Rs. 17.0
TOTAL COST (per unit + investigations) →	Rs. 385.92	Rs. 386.01	Rs. 401.72

RESULTS – Cost of treatment for DAY 1 in monotherapy (emergency ward)

Regimen prescribed	Cost of drug + Cost of investigations (Rs)	Total Cost
Inj. Frusemide 40mg (i.v stat) + Tab AMLODIPINE + LOSARTAN (FDC) (OD)	8.80 + 1.20 + 384.72	Rs. 394.72
Inj. Torsemide 10mg (i.v stat) + Tab AMLODIPINE 10mg OD + Tab ATORVASTATIN 40mg OD	3.0 + 3.29 + 11.01 + 384.72	Rs. 402.2
Inj. Labetalol 20mg (i.v stat) + Tab AMLODIPINE + LOSARTAN OD (FDC)	366.0 + 1.20 + 384.72	Rs. 751.92
Inj. Frusemide 40mg (i.v stat) + Tab LOSARTAN + HYDROCHLORTHIAZIDE (FDC)	8.8 + 1.29	Rs. 394.81

CONCLUSION (Rates applicable to SBH only)

- **OLMESARTAN**

Rs. 3.29/unit

^{3x}
>>>

- **LOSARTAN**

Rs 1.0/unit

- **AMLODIPINE 10mg**

Rs. 3.29/unit

^{7x}
>>>>>>

- **AMLODIPINE 5mg**

Rs. 0.43/unit

- **ATORVASTATIN 40mg**

Rs. 11.0/unit

^{5x}
>>>>>

- **ATORVASTATIN 20mg**

Rs. 2.0/unit

- Inj. **FRUSEMIDE 40mg**

Rs. 8.8/unit

^{3x}
>>>

- Inj. **TORSEMIDE 10mg**

Rs.3.0/unit

- **FDCs (Telmisartan + Hydrochlorthiazide)** ^{13x} >>>> **FDCs (Amlodipine + Losartan)**

Rs. 17.0/unit

Rs. 1.29/unit

TAKE AWAY MESSAGE

- **Maximum patients in age group (31-40) → early lifestyle changes**
- **Calcium channel blockers lowers BP >>> Diuretics**
- **Torsemide >>> Frusemide (Torsemide → increased bioavailability, longer half-life, beneficial effects on myocardial fibrosis, the neurohormonal axis, and ventricular structure)**
- **Among ARBs → Olmesartan >> Telmisartan = Losartan**

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THANK YOU