Role of Maintenance Therapy in the Management of Haematological Malignancies

Essay study

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By

Mary Safwat William

M.B.B.Ch., Ain Shams University

Supervised by

Prof. Dr. Mohamed Osman Azzazi

Professor of Internal Medicine and Haematology
Faculty of Medicine- Ain Shams University

Dr. Gihan Kamal Mohamed

Assistant Professor of Internal Medicine and Haematology
Faculty of Medicine- Ain Shams University

Dr. Rasha Ibrahim Ibrahim

Lecturer of Internal Medicine and Haematology
Faculty of Medicine- Ain Shams University

Faculty of Medicine
Ain Shams University
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دور العلاج الاستمرارى فى علاج أورام الدم السرطانية

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مقدمة من

طبيب/ مارى صفوت وليم

بكالوريوس الطب والجراحة

تحت اشراف

الأستاذ الدكتور/ محمد عثمان عزازى

أستاذ أمراض الباطنة العامة وأمراض الدم

كلية الطب- جامعة عين شمس

الدكتورة/ جيهان محمد كمال

أستاذ مساعد أمراض الباطنة العامة وأمراض الدم

كلية الطب- جامعة عين شمس

الدكتورة/ رشا إبراهيم إبراهيم

مدرس أمراض الباطنة العامة وأمراض الدم

كلية الطب- جامعة عين شمس

كلية الطب

جامعة عين شمس

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Abbreviation	*Stands for*
6-MMPN	6-Methyl Mercapto Purine Nucleotide
6MP	6-Mercaptopurine
6-TGN	6-thioguanine
ABL1	Abelson murine lukemia viral oncogene homolog 1
ABVD	Doxorubicin, Bleomycin, Vinblastine, Dacarbazine
AIHA	Autoimmune hemolytic anemia
ALK	Anaplastic lymphoma kinase
ALL	Acute lymphoblastic leukemia
AlloSCT	Allogeneic stem cell transplantation
AML	Acute myeloblastic leukaemia
ANC	Absolute neutrophil count
AP	Accelerated phase
APL	Acute promyelocytic leukaemia
ASCT	Autologous stem cell transplantation
ASXL1	Additional sex combs-like 1
ATO	Arsenic trioxide
ATRA	All-trans retinoic acid
AYA	Adolescents and young adults
BCR-ABL	Breakpoint Cluster Region- Abelson tyrosine kinase
BCR-ABLIS	BCR-ABL International Scale
BEACOPP	Bleomycin, Etoposide, Doxorubicin, Cyclophosphamide, Vincristine, Procarbazine, and Prednisone
BEAM	Carmustine, Etoposide, Cytosine, Arabinoside, Melphalan
BFM	Berlin-Frankfurt-Münster Group
BM	Bone marrow
BP	Blast phase
B-PLL	B-cell prolymphocytic leukemia
BR	Bendamustine , Rituximab
BRAF	B-Raf proto-oncogene, Serine/Threonine Kinase, v Raf murine sarcoma viral oncogene homolog B
BrECADD	brentuximab vedotin, etoposide, cyclophosphamide, doxorubicin, dacarbazine, and dexamethasone

Abbreviation	*Stands for*
BrECAPP	Brentuximab vedotin, Etoposide, Cyclophosphamide, Doxorubicin, Procarbazine, and Prednisone
BSC	Best supportive care
BVR	Bendamustine, Bortezomib & Rituximab
CALGB	Cancer and Leukaemia Group B
CAR	Chimeric antigen receptor
CBA	Chromosome banding analysis
CBC	Complete blood count
CBF-AML	Core binding factor acute myeloblastic leukaemia
CCA	Clonal chromosome abnormalities
CCG	Children's Cancer Group
CCgR	Complete cytogenetic response
CD	Class of differentiation
CEBPα	CCAAT/enhancer binding protein alpha
CHOP	Cyclophosphamide, Vincristine, Doxorubicin, Prednisone
CHR	Complete haematological response
CI	Confidence Interval
CLL	Chronic lymphocytic leukemia
CML	Chronic myeloid leukemia
CMV	Cytomegalovirus
CNOP	Cyclophosphamide, Vincristine, Mitoxantrone, Prednisone,
CNS	Central nervous system
COPP	Cyclophosphamide, Vincristine, Procarbazine, Prednisone
CP	Chronic phase
CR	Complete remission
CRu	unconfirmed complete response
CSF	Cerebrospinal fluid
CSS	Case specific survival
CT	Computed tomography
CVAD	Cyclophosphamide, Vincristine, Doxorubicin, Dexamethasone
CVP	Cyclophosphamide, Vincristin, Prednisone
DAT	Direct antiglobulin test
DEX	Dexamethasone
DFCI	Dana-Farber Cancer Institute

Abbreviation	*Stands for*
DFS	Disease free survival
DHAP	Dexamethasone, Cytarabine, Cisplatin
DLBCL	Diffuse large B-cell lymphoma
DLI	Donor lymphocyte infusion
DNMT3A	DNA (cytosine-5)-methyltransferase 3 α
E2A-PBX1	Immunoglobulin enhancer binding factors E12/ E47 (Transcription factor E2 alpha) -Pre B-cell leukemia transcription factor 1
EBF1	Early B Cell Factor 1
EBV	Epstein bar virus
ECOG	Eastern cooperative group
EDTA	Ethylenediaminetetraacetic acid
EFS	Event free survival
ELN	European LeukemiaNet
EMD	Extramedullary disease
EP300	E1A binding protein P300
EPOR	Erythropoietin Receptor
ETP	Early T-cell precursor
ETV6	Ets variant gene 6
FAB	French-American-British
FC	Fludarabine , Cyclophosphamide
FcGRIII	Fc fragment of IgG, low affinity IIIa receptor
FCR	Fludarabine, Cyclophosphamide and Rituximab
FDA	Food & drug administration
FI	Full intensity
FISH	Fluorescence in situ hybridization
FL	Follicular lymphoma
FLIPI	Follicular lymphoma specific international prognostic index
FLT3/ITD	Fms-like tyrosine kinase 3/ Internal Tandem Duplication
FM	Fludarabine, Mitoxantrone
GEMOX	Gemcitabine, Oxaliplatin
GHSG	German Hodgkin Study Group
GIMEMA	Italiano Malattie Ematologiche dell'Adulto
GVHD	Graft versus host disease

Abbreviation	*Stands for*
H & E	Hematoxylin and eosin
HDAC	histone deacetylase inhibitor
HDC, HDCT	High dose chemotherapy
HDT	High dose therapy
HIV	Human immunodeficiency virus
HL	Hodgkin lymphoma
HLA	Human leukocyte antigen
HPRT	hypoxanthine phosphoribosyl transferase
HRQoL	Health-related quality of life
HSCT	Haemopoietic stem cell transplantation
ICE	Ifosfamide, Carboplatin, Etoposide
IDH	Isocitrate dehydrogenase
IDMC	Independent Data Monitoring Committee
I-FISH	Interphasefluorescence in situ hybridization
IFM	Intergroupe Francophone du Myelome
IFN	Interferon
IFRT	Involved-field radiation therapy
IGHV	Immunoglobulin heavy chain variable
IKZF1	Ikaros Zinc Finger 1
IL3-IGH	Interleukin 3 –Immunoglobulin heavy chain gene
IL7R	Interleukin 7 Receptor
IMiDS	Immunomodulatory drugs
IMWG	International Myeloma Work Group
IPS	International Prognostic Score
IV	Intra venous
JAK	Janus Activated Kinase
KD	Kinase domain
KIR	Killer immunoglobulin- like receptor
L&H	Lymphocytic and histiocytic cells
LDH	Lactate dehydrogenase
LEN	Lenalidomide
MALT	Mucosal associated lymphoid tissue
MBL	Monoclonal B-lymphocytosis
MCL	Mantle cell lymphoma

Abbreviation	*Stands for*
MDACC	MD Anderson Cancer Center
MDS	Myelodysplastic syndrome
MGUS	Monoclonal gammopathy of undetermined significance
MIPI	Mantle international prognostic index
MLL	Mixed lineage leukaemia
MM	Multiple Myeloma
MMR	Major molecular response
MoAb	Monoclonal antibody
MOPP	Nitrogen mustard, Vincristine, Procarbazine, and Prednisone
MP	Melphalan- Prednisone
MPAL	Mixed phenotype acute leukemias
MPR-R	Melphalan –Prednisone-Revilmide plus Revilmide maintenance
MPT	Melphalan – Prednisone-Thalidomide
MR	Molecular response
MRC	Medical Research Council
MRD	Minimal residual disease
MRI	Magnetic resonance imaging
mRNA	Messenger Ribonucleic Acid
MS	Mass spectrometry
mSMART	Mayo stratification for Myeloma and Risk adapted therapy classification.
MUD	Matched unrelated donor
MYC	V-Myc avian myelocytomatosis viral oncogene homolog
MZL	Marginal zone lymphoma
NA	Not applicable
NCCN	National comprehensive cancer network
NCI	National cancer institute
NHL	Non Hodgkin lymphoma
NK	Natural killer
NMZL	Nodal marginal zone lymphoma
NPM1	Nucleophosmin 1
OFAR	Oxaliplatin, fludarabine, cytarabine and rituximab
OR	Odds Ratio
ORR	Overall response rate

Abbreviation	*Stands for*
OS	Overall survival
PCgR	Partial cytogenetic response
PCR	Polymerase chain reaction
PCR	Pentostatin, cyclophosphamide and rituximab
PDGFRβ	Platelet Derived Growth Factor Receptor B
PET	Positron emission tomography
PFS	Progression free survival
Ph	Philadelphia
PLD	Pegylated liposomal Doxorubicin
POG	Pediatric Oncology Group
Pre-B-cell	Precursor B-cell
PTCL	Peripheral T-cell lymphoma
PTL	Primary testicular lymphoma
pts	Patients
QOL	Quilty of life
R-	Rituximab added
RACVBP	Rituximab, Doxorubicin, Vindesine, Cyclophosphamide, Bleomycin, Prednislone
RAS	Named after Rat Sarcoma
RD	Revilmide- Dexamethasone
REAL	Revised European American Lymphoma
RFS	Relapse free survival
RIC	Reduced Intensity Chemotherapy
RIC	Reduced-intensity conditioning
RT-PCR	Reverse transcriptase polymerase chain reaction
RT-Q-PCR	Real time, quantitative, PCR
RUNX1	Runt-related transcription factor 1
RVD	Revilmide- Velcade- Dexamethasone
scFv	Single chain variable fragment
SCLC	Small cell lung cancer
SEER	Suirvellance, Epidemiology and End Results program of National Cancer Institute
SH2B3	SH2B adaptor protein 3
SLL	Small lymphocytic lymphoma

Abbreviation	*Stands for*
SMILE	Dexamethasone, Methotrexate, Ifosfamide, L-asparginase, Etoposide
SMM	Smouldering multiple myeloma
SMZL	Splenic marginal zone lymphoma
SRC	Named after sarcoma
SWOG	Southwest Oncology Group
T	Thalidomide
TBI	Total Body Irradioation
TD	Thalidomide -Dexamethasone
TdT	Terminal deoxynucleotidyl transferase
TET2	Ten-Eleven Translocation 2
TKIs	Tyrosine kinase inhibitors
TLS	Tumor lysis syndrome
TPMT	Thiopurine Methyltransferase
TTP	Time to progress
URD	Unrelated donor
VBMCP/VBAD/B	Vincristine – melphalan - cyclophosphamide- prednisone / vincristine - carmustine-doxorubicin - dexamethasone/ bortezomib
VCD	Velcade-Cyclophosmaide-Dexamethasone-
VD	Velcade - Dexamethasone
VGPR	Very good partial response
VMP	Velcade- Melphalan- Prednisone
VMPT	Velcade-Melphalan-Prdnisone-Thalidomide
VP	Velcade- Prednisone
VRd	Velcade-Revilmide- low dose dexamethasone
VT	Velcade-Thalidomide
VTD	Velcade- Thalidomide-Dexamethasone
VTP	Velcade- Thalidomide-Prednisone
WBC	White blood cell
WHO	World health organization
XO	xanthine oxidase

INTRODUCTION

Maintenance therapy in multiple myeloma has been under investigation for more than 3 decades and has been without evidence of clear advantage in terms of progression-free survival (PFS) until the mid-2000s. Although a cure for multiple myeloma is still not possible in most patients, maintenance of a prolonged progression-free interval with minimal toxicity is an important goal in the management of this disease. The median overall survival among patients who required therapy before 1996 was approximately 3 years ***(kumar et al, 2004).***

Neither conventional chemotherapy, prednisone, nor interferon-based maintenance regimens offered any benefit after conventional or high-dose therapy ***(Belch A et al, 1988), (Fritz E & Ludwig H, 2000), (Berenson JR et al, 2002).***

In the era of new agents and autologous hematopoietic stem-cell transplantation, the median overall survival after transplantation is close to 8 years ***(kumar et al, 2004).***

Thalidomide was the first drug, mainly given as maintenance after high dose therapy, to demonstrate clinical benefits in terms of PFS and, in some studies, of overall survival (OS) ***(Attal M et al, 2006), (Palumbo A et al, 2008).***