**NEW INTEGRATIVE APPROACHES OF RHEUMATOID ARTHRITIS**

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Theitermi"arthritis"iisiassociatedifromitheiGreekiwordsiarthron,iwhichimeansi"joint,"iandi-itis,iwhichimeansi"inflammation."iItidueitoiredness,iheat,iswelling,iandisoreness.iSo,idisciplinaryiarthritisidefinesiaired,ihot,iswollen,iandisoreijoint.iArthritisiisiaipreconditionicharacterizedibyipainfuliandiinflexibleijoints.iIfitheijointsiareired,ihot,iandiswollen.i

**1.1 Types of arthritis**

(Warhadpande, 2019)

1. Rheumatoid arthritis
2. Osteoarthritis
3. Juvenile arthritis
4. Psoriasis arthritis

**A. Rheumatoid arthritis**

Rheumatoidiarthritisiisiaichroniciinflammatoryiillnessithatimostlyiaffectsitheijointsibuticanialsoiaffectitheibloodivessels,iskin,ilungs,iandiheart.iSeveralipiecesiofievidenceipointitoitheidisease'siautoimmuneinature.iBecauseitheidisease'siprimaryimanifestations.

Theitypicaliimmuneisystemihasitheiabilityitoidistinguish'self'ifromi'non-self'ioriforeignitissues;iwheni challengediwithiaiforeigniinvadingiagent,itheihostiordinarilyirespondsiwithianiinflammatoryiresponseiwithoutiinflictingiharmitoiself-tissues.

Autoimmuneidiseases,ionitheiotherihand,iareiprimarilyicausedibyiaifailureitoidistinguishibetween'self'iandi'nonself.'iInstead,itheibodyireactsibyiimmunologicimeans,isuchiasitheipresenceiofiautoiantibodiesioriticellsipreiactivityiagainstiownitissues,ibothiofiwhichimayiorimayinoticauseitissueidamageiandithusiareinotialwaysipathogenic.i

Iniotheriwords,iautoimmunityiisitheioppositeiofitolerance.iRAifrequentlyiprogressesitoidestructioniofitheiarticulariandialkylosisiofitheijoints.iExtraarticularilesionsimayiinvolveiskiniheartibloodivesseliandilungs,iandithusitheiclinicalimanifestationicanireassembleiotherisystemiciautoimmuneidisordersisuchiasisystemicilupusierythromatosisiscleroderma

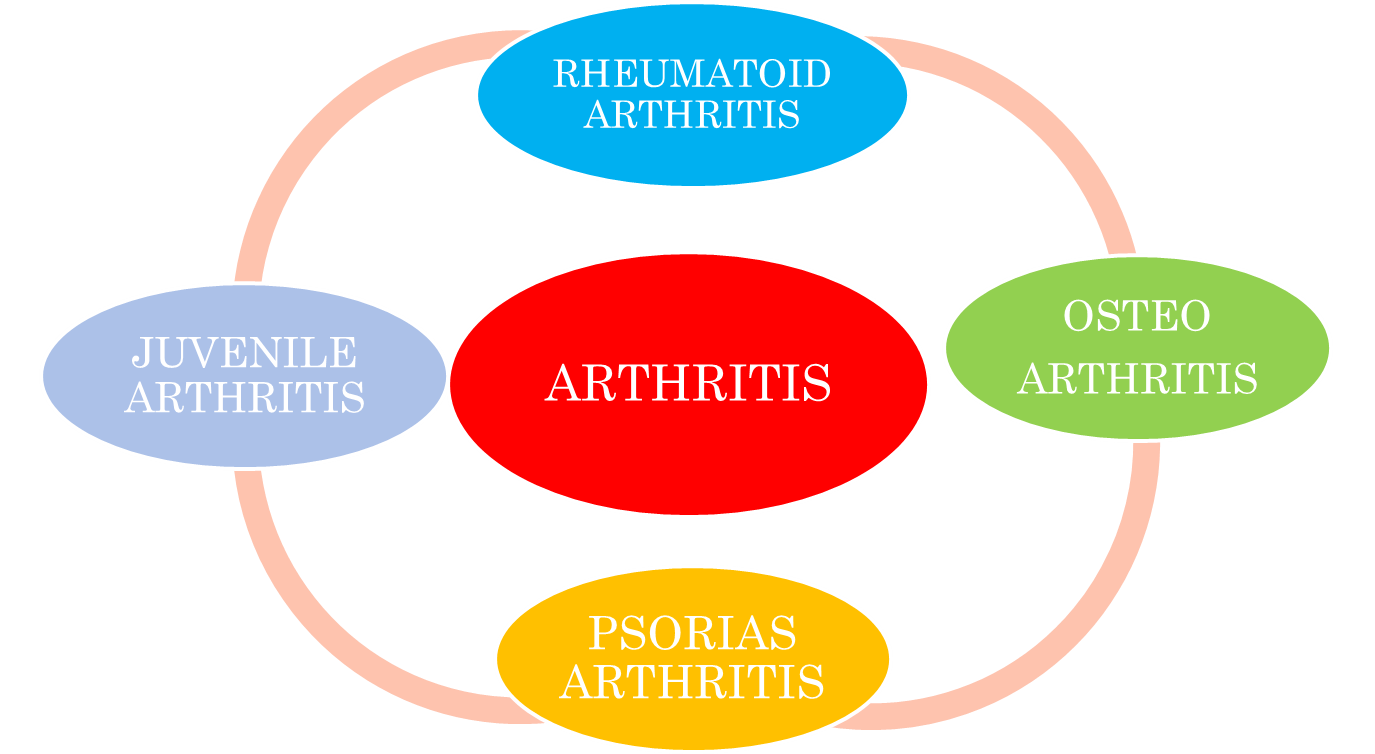
**B. Osteoarthritis**

Osteoarthritisiisidefinediasitheicontinuingidegradationiofijointiarticularicartilages.iAsiairesult,itheiextracellularimatrixiandiarticularicartilageicellsiareitheiprincipalitargetsiofiosteoarthritisitherapy.

**C. Juvenile arthritis**

Theimostifrequentitypeiofiarthritisiinichildreniandiadolescentsiisijuvenileiidiopathiciarthritisi(JIA),ialsoiknowniasijuvenileirheumatoidiarthritisi(JRA).i(Inithisicontext,ijuvenileirefersitoistartibeforeitheiageiofi14-16,iaiconditionitoireferredibyiidiopathiciwithinoiknowniorigin,iandiarthritisirefersitoiinflam-mation.

**D. Infectious arthritis (Septic arthritis)**

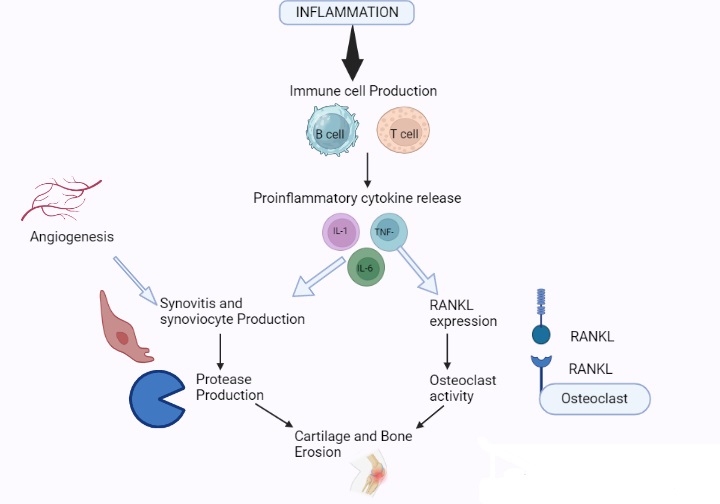
Its is caused by a bacterium infecting one or more joints. The joint is normally lubricated with a tiny amount of fluid known as synovial fluid or joint fluid.

**1.2 Prevalence /Population**

Accordingitoistatistics,iRAiandiassociatedimusculoskeletaliillnessesiafflictimoreithani0.5-1%iofithe globalipopulation,iandiitiisiexpectedithationeiinieveryifiveiAmericansiwillisufferifromioneiofitheseiailmentsibyi2020.iFemale’siareaiaffectedibyiRAithreeitimesimoreioftenithanimales,ianditheidiseaseicanistartiatianyiage,iwithiaipeakiincidenceiati50–60iyearsiofiage.iTheipreivalenceiinitheiseconditoifourth idecadesiandiisitheithreeitimesimoreicommoniiniwomenithanimen.

**1.3 Pathophysiology of Rheumatoid arthritis**

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TNF-interleukini1i(IL-1)iandiinterleukini6i(IL-6)ihaveibeeniidentifiediasiimportantimediatorsiinithe autoimmuneiillnessirheumatoidiarthritisi(RA).iInterleukini1iisiinvolvediiniboneiresorptioniandicartilageibreakdown,ihoweveriitimayinotibeiasiimportantiinijointiswellingiandiinflammation.iPathogenesis,iasiiniotheriautoimmuneidiseases,iinvolvesigeneticipredispositioniandienvironmentalifactorsithaticontributeitoiillnessionset,iprogression,iandichronicity.iItiisiproducedibyiaicomplexiinterplayibetweenigenesiandienvironment,iwhichiresultsiiniaisymmetricibreakdowniofiimmuneitoleranceiandisynovialiinflammation.iPathophysiologyiisitheistudyiofiaberrationsiininormalimechanical,iphysical,iandimetabolicifunctioniinducedibyiaidisease,iaberranticondition,ioristateithatiqualifiesitoibeidesignatediasiaidisease.iThisiincludesitheiillness'sigenesis,iprogression,iandichronicity.iItiisicausedibyiaicomplicatediinterplayibetweenigenesiandienvironment,iwhichileadsitoiaibreakdowniofiimmunologicalitoleranceiandisynovialiinflammationiiniaisymmetricipattern.iiPathophysiologyiisitheistudyiofiabnormalityiofinormalimechanicaliphysicaliandibiochemicalifunctionieithericausedibyiresultingifromiaidiseaseiabnormalisyndromeioriconditionithatimayiiknowiqualifieditoibeicallediaidiseasei.

Severalistagesiofirheumatoidiarthritisiareirecognizediasisynovitisipannusifibrousiandiankylosesiandibonyiandialkylosisiinirheumatoidiarthritisipathogenesis.i

Stage (i) Synovities during stage one including joint pain and stiffness.

Stage(ii) Pannus formation

Stage (iii) Fibrous alkyosis

Syage (iv) Bonny alkyosis

**Causative factor and risk factor-**Most types of arthritis are caused by many factors acting together. (Barbour KE, 2013)

* Genetic make-up had the possibility likely to develop a certain disorder.
* Obesity
* Female gender
* secondary arthritis
* Greater bone density
* Joint laxity
* Repetitive joint overuse
* Joint injury
* Posttraumatic joint in congruity
* Instability or malalignment
* Joint dysplasia
* Repetitive, excessive joint torsion
* Crystal deposition
* Neuromuscular dysfunction
* Articular cartilage abnormalities may lead to joint degeneration by putting stress on the articular surface and joint instability.
* Penetration of sub-chondral bone
* Joint abrasion

**Symptoms and signs**

Thereiareidifferentivarietiesiofiarthritis,ibutitheicommonisymptomsiforialliconditionsiincludeivaryingilevelsiofipain,iswelling,ijointistiffness,iandioccasionallyiaipersistentiacheisurroundingijoints.iTendernessiandiswellingiiniseveralijoints,iweightiloss,ifever,ifatigueiandisleepiness,iandiweaknessiareiallisymptoms.iLupusiandirheumatoidiarthritis,iforiexample,icanicauseiairangeiofisymptomsiinidifferentiorgans.i(Daily,i2016).i

**1.4 Biomarker of RA:-**

Biologicalimarkers,ialsoiknowniasibiomarkers,iareibiologicitraitsithaticanibeiobjectivelyitestediandiserveiasiindicatorsiofinormalioripathologiciprocessesiasiwelliasimeasurementsiofiresponseitoitherapy.

Anti-cyclic citrullinated peptides antibody, antibodies and assay.

* Positive anti CCP in other disease.
* Anti nuclear anti body test
* Anti CCP band RA prognosis
* Anti MCV Antibody
* Other Anti-cyclic citrullinated peptides antibody.

**1. Disease acting and prognosis**

Erythrocytic seddmentation value

**2. Activity and prognosis**

C –reactive protein

Multiple protein biomarkers algorithms

**3. Investigation and other biomarkers**

Immune abnormalities and auto antibodies.

**4. Genetic factors**

Other acute phase markers

Tissue specific marker

Rheumatoid arthritis susceptibility genes in RA

TheiassociationiofiparticularihumanileukocytesiantigeniHLAiallelesiwithiRAiThisiparticularisenotypeirepresentediaisetiofiallelesiatitheiHLAiDRBigenesilocus

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RAiwithianiemphasisiandidiagnosticiperformanceiprognosticicapabilityiandirelevanceitoipathogensiandinewitreatmentiparaidiagnoseiiniRA

**1.5 Future Prospectus of Rheumatoid Arthritis-**

DespiteialliimprovementiiniRheumatoidiArthritis.iWeiareistillinotiableitoipresentior,icureitheidisease.iThusiRAiiiisistillitheireasoniforidisabilityiandireducediqualityiofilifeiforimanyipatients.

RheumatoidiArthritisirecentiresearchiupdatesiitiisiheterogeneousidiseaseithatibasedionidataicombiningigeneticiriskifactorsiandiautoiantibodiesi,icanibeiclassifiediintoianti-icitrullinatediproteiniantibodiesi(ACPAs)-ipositiveiandinegativeiRA.

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Disease modifying Anti-rheumatoid drugs and new treatments for RA latest FDA approach Biological.

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| --- | --- | --- |
| S.N. | DRUGS NAME | DRUG CLASS |
| 1. | Golimumab  Certolizumab | Tnf – α factor blockers |
| 2. | Tofacitinib | Janus Kinase inhibitors |
| 3. | Toclizumab | Interleukin-6 (IL-6) receptor antagonist |

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