

利用摘除卵巢小鼠為動物模式評估克弗爾延緩骨質流失之功效

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摘要

停經後婦女較易產生骨質疏鬆，主因為卵巢失去功效無法分泌雌激素與異黃酮，導致無法促進成骨細胞生長以及抑制破骨細胞過度活躍之能力因而造成骨質疏鬆。前人研究酪蛋白磷酸²具有與鈣結合之能力，且具有易吸收與延緩鈣質與骨質流失之功能。本試驗即是以去卵巢小鼠作為模擬女性停經後之動物模式，評估發酵乳製品-克弗爾延緩骨質流失之功效。本試驗共分兩階段：(1) 克弗爾在摘除卵巢老齡鼠之骨質流失延緩功效評估。本試驗以八周齡之B6小鼠進行摘除卵巢，做為模擬女性停經後因激素缺乏導致骨質疏鬆症之動物模式，而後分五個處理組，分別為切除卵巢處理組(Water/OVX)、假手術處理組(Water/Sham)、碳酸鈣補充組(Ca/OVX)、克弗爾補充組(Kefir/OVX)及克弗爾加上碳酸鈣補充組(Kefir+Ca/OVX)。各組飼養至16月齡後犧牲，並以Micro-CT分析膝蓋端生長板骨小樑。結果顯示，於膝蓋端生長板骨小樑之3D立體結構、骨佔組織比例(BV/TV)、骨小樑骨礦物密度(BMD)、骨小樑厚薄度(Tb.Th)、骨小樑數量(Tb.N)、骨小樑分離度(Tb.Sp)及至密骨骨礦物密度(BMD)皆未有明顯差異。推論造成此情形的原因可能是鼠齡過老，即使餵有營養補充功效之補充劑亦無法延緩骨質流失。(2) 克弗爾在摘除卵巢小鼠模擬女性中年更年期的骨質流失延緩功效評估。本試驗以達到性成熟之4個月齡小鼠進行摘除卵巢，做為模擬女性停經後因激素缺乏導致骨質疏鬆症之產生，同樣分為五種處理組飼養2個月後犧牲，並以Micro-CT來分析膝蓋端生長板骨小樑得知，膝蓋端生長板骨小樑之3D立體結構組間即有顯著性差異，骨佔組織比例(BV/TV) Kefir/OVX組比Water/OVX組上升75%、骨小樑骨礦物密度(BMD) Kefir/OVX組比Water/OVX組上升27%、(Tb.Th) Kefir/OVX組比Water/OVX組上升24%、(Tb.N) Kefir/OVX組比Water/OVX組上升55%而(Tb.Sp) Water/OVX組比Kefir/OVX組上升18%，統計後結果顯示皆以Kefir/OVX處理組為五種處理組中骨小樑維持量最高者。此試驗結果證實克弗爾具有延緩骨質流失之效果。

關鍵詞：摘除卵巢小鼠、克弗爾、Micro-CT、掃描式電子顯微鏡

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