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## Ⅱ. 研究成果の刊行に関する一覧表

## II. 研究成果の刊行に関する一覧表 (論文別刷リスト)

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### Ⅲ. 研究成果の刊行物・別刷

## 解説

# がん組織を捉える 革新的MRI造影剤の開発

やましたみつじ<sup>1</sup>・おざきのぶひさ<sup>2</sup>・やましたじゅんこ<sup>3</sup>  
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**核** 磁気共鳴画像診断法 (MRI) は、低侵襲性のラジオ波を使うため、安全に生体組織を造影できる。高感度で鮮明な画像を得るには MRI 造影剤が必要であり、安定な Gd-DTPA などのガドリニウム錯体が最もよく使用されている。しかし、この造影剤の血管貯留性が低いことから、血管などを描出するために多量に投与した際、あるいは腎疾患の方に、稀に発生する副作用などが問題となっていた。

最近、これらの欠点を克服した新しい MRI 造影剤が数例報告され、実用化に近い成果も見られる。ここでは MRI 造影剤研究の現状を解説するとともに、医療のニーズに合った造影剤とは何かを示す。

## 求められる画像診断法の革新

人びとは健康と長寿を望んでおり、病気の発見・治療よりさらに進んだ医療である「病気の予防」が、近年ますます

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<研究テーマ> 医用材料工学 (シュガーボールデンドリマー型 MRI 造影剤の開発、リン糖抗がん剤の開発、医用高分子材料、超親水性医用材料、キトサンの医用材料化など)。  
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<研究テーマ> 新規非対称型 MRI 造影剤の合成と評価。  
<趣味> 車の運転や整備

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<研究テーマ> 医用材料工学 (シュガーボールデンドリマー型 MRI 造影剤の開発、リン糖抗がん剤の開発、医用高分子材料、超親水性医用材料など)。  
<趣味> 水泳

注目されている。健康を保つためには、一次予防としてより早期に病気を見つけ、二次予防としてより早期に治療を開始することが重要である。したがって、一次予防である健康診断などを多くの方が積極的に受診し、病気を早期に発見する機会を得てもらうことが必要である。

健康診断においては、血液検査や尿検査など簡便な検査方法が選択されているが、正確に疾患を捉えるためには、生体内を画像化する技術を用いる。その技術として、①内視鏡や腹腔鏡などの光学機器を使う技術、②超音波エコーによるリアルタイム画像化、③ X 線 CT (computed tomography: コンピュータ断層撮影)<sup>1)</sup> やポジトロン断層法 (positron emission tomography; PET)、単一光子放射断層撮影 (single

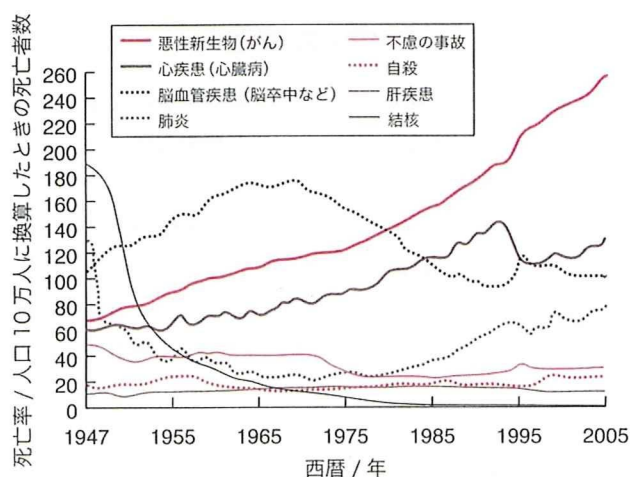


図1 おもな死因別に見た死亡率の年次推移  
厚生労働省、平成18年人口動態統計より引用。